PIONEER

The Art of Entertainment

Service Manual

ORDER NO.
ARP2679

STEREO DOUBLE CASSETTE DECK

CT-W402R
CT-W420R

- **Refer to the service manual ARP2696, CT–W502R/KUXJ.**

CT-W402R AND CT-W420R HAVE THE FOLLOWING:

Type	Model		Power Requirement	Remarks
	CT-W402R	CT-W420R		
KUXJ	○	–	AC120V only	
HEM	–	○	AC220 – 230V, 230 – 240V (Switchable) *	
HB	–	○	AC220 – 230V, 230 – 240V (Switchable) *	
HBXJ	–	○	AC220 – 230V, 230 – 240V (Switchable) *	
HEMXJ	–	○	AC220 – 230V, 230 – 240V (Switchable) *	

* Change the connection of the power transformer's primary wiring.

- This manual is applicable to the following: CT-W402R/KUXJ ;CT-W420R/HEM,HB, HBXJ and HEMXJ.

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1. CONTRAST OF MISCELLANEOUS PARTS

NOTES:

- Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.
- The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- Parts marked by "⊙" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.
- When ordering resistors, first convert resistance values into code form as shown in the following examples.

Ex.1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J=5%, and K=10%).

$560\,\Omega \rightarrow 56 \times 10^1 \rightarrow 561$ ································ RD1/8PM$\boxed{5}\boxed{6}\boxed{1}$J

$47\text{k}\,\Omega \rightarrow 47 \times 10^3 \rightarrow 473$ ································ RD1/4PS$\boxed{4}\boxed{7}\boxed{3}$J

$0.5\,\Omega \rightarrow 0R5$ ································ RN2H$\boxed{0}\boxed{R}\boxed{5}$K

$1\,\Omega \rightarrow 010$ ································ RS1P$\boxed{0}\boxed{1}\boxed{0}$K

Ex.2 When there are 3 effective digits (such as in high precision metal film resistors).

$5.62\text{k}\,\Omega \rightarrow 562 \times 10^1 \rightarrow 5621$ ································ RN1/4PC$\boxed{5}\boxed{6}\boxed{2}\boxed{1}$F

1.1 CONTRAST OF MISCELLANEOUS PARTS

CT-W402R/KUXJ, CT-W420R/HEM, HB, HBXJ, HEMXJ and CT-W502R/KUXJ have the same construction except for the following:

Mark	Symbol & Description	Part No.						Remarks
		CT-W502R/ KUXJ	CT-W402R/ KUXJ	CT-W420R/ HEM	CT-W420R/ HB	CT-W420R/ HBXJ	CT-W420R/ HEMXJ	
NSP	Mother unit	RWM1581	RWM1597	RWM1598	RWM1598	RWM1598	RWM1598	
	Main unit	RWZ2823	RWZ2843	RWZ2846	RWZ2846	RWZ2846	RWZ2846	
	Display unit	RWZ2825	RWZ2844	RWZ2847	RWZ2847	RWZ2847	RWZ2847	
NSP	Transformer 1 unit	RWZ2941	RWZ2941	RWZ2930	RWZ2930	RWZ2930	RWZ2930	
NSP	Transformer 2 unit	RWZ2827	RWZ2845	RWZ2848	RWZ2848	RWZ2848	RWZ2848	
NSP	LED unit	······	······	RWZ2932	RWZ2932	RWZ2932	RWZ2932	
⚠	Strain relief	CM – 22C	CM – 22C	CM – 22B	CM – 22B	CM – 22B	CM – 22B	
⚠	AC power cord	PDG1015	PDG1015	PDG1003	VDG1051	VDG1051	PDG1003	
⚠	Power transformer (AC120V)	RTT1223	RTT1223	······	······	······	······	
⚠	Power transformer (AC220 – 230/230 – 240V)	······	······	RTT1224	RTT1224	RTT1224	RTT1224	
	BS pin cap	······	······	······	VEC1616	VEC1616	······	for AC power cord
⚠	FU1, FU2 Fuse (UL1.5A)	DEK1014	DEK1014	······	······	······	······	
⚠	FU1, FU2 Fuse (T1.6A)	······	······	REK1024	REK1024	REK1024	REK1024	
⊙	Mechanism unit (DECK I)	RYM1198	RYM1202	RYM1198	RYM1198	RYM1198	RYM1198	
	Knob	RAC1783	RAC1790	RAC1784	RAC1784	RAC1784	RAC1784	
	FL lens	RAH2179	RAH2215	RAH2216	RAH2216	RAH2216	RAH2216	
	Front panel	RAH1281	RAH2204	RAH2182	RAH2182	RAH2182	RAH2182	
	Door pocket L	RAH2183	RAH2212	RAH2183	RAH2183	RAH2183	RAH2183	
	Door pocket R	RAH2184	RAH2184	RAH2185	RAH2185	RAH2185	RAH2185	
	Foot assembly	PXA1201	PXA1201	······	······	······	······	
	Insulator	······	······	PNW1912	PNW1912	PNW1912	PNW1912	for foot
	Rubber sheet	AEB1111	AEB1111	······	······	······	······	
	LED lens	······	······	PNW2019	PNW2019	PNW2019	PNW2019	
NSP	Rear panel	RNA1702	RNA1704	RNA1665	RNA1666	RNA1672	RNA1671	
NSP	Mechanism shield plate	RNE1519	······	RNE1519	RNE1519	RNE1519	RNE1519	
NSP	Main chassis	RNB1091	RNB1091	RNB1089	RNB1089	RNB1091	RNB1091	
	Sheet	Z23 – 007	Z23 – 007	RHX – 034	RHX – 034	Z23 – 007	Z23 – 007	
	Packing case	RHG1480	RHG1482	RHG1435	RHG1436	RHG1443	RHG1442	
	Spacer A	······	······	······	RHC1032	RHC1032	······	for packing
	Spacer B	······	······	······	RHC1033	RHC1033	······	for packing
	Operating instructions (English)	RRB1127	RRB1127	······	RRB1130	RRB1127	······	
	Operating instructions (English/French/German/Italian/Dutch/ Swedish/Spanish/Portuguese)	······	······	RRE1075	······	······	RRE1072	

DISPLAY UNIT

RWZ2844, RWZ2847 and RWZ2825 have the same construction except for the following:

Mark	Symbol & Description	Part No.			Remarks
		RWZ2825	RWZ2844	RWZ2847	
	S1518	RSG1034	......	......	

TRANSFORMER 1 UNIT

Although RWZ2930 and RWZ2941 are different in part number, they consist of the same components.

TRANSFORMER 2 UNIT

Although RWZ2845, RWZ2848 and RWZ2827 are different in part number, they consist of the same components.

● PCB PARTS LIST

MAIN UNIT (FOR CT-W402R/KUXJ TYPE)

SEMICONDUCTORS

Mark	No.	Description	Part No.
	IC701, IC902		BA15218
	IC301		BA15218N
	IC101		CXA1115BP
	IC251		CXA1330S
	IC1003, IC1004		NJM7812FA
	IC1002		NJM78M05FA
	IC501		PD4442A
	IC1701		TC4050BP
	IC651		UPC1297CA
	IC903		XRA10393N
	Q802, Q808, Q809, Q852, Q858, Q1005, Q1010		2SA1309A
	Q1001		2SB1041
	Q460, Q804, Q854		2SB1238X
	Q456-Q458		2SC1815
	Q163, Q164, Q459, Q1006, Q1007		2SC3311A
	Q807, Q857		2SD1858X
	Q309-Q312, Q701, Q702		2SD2144S
	Q161, Q162		2SK373
	Q165, Q652		DTA114ES
	Q508, Q751		DTA114TS
	Q108, Q454, Q455, Q904		DTC114TS
	Q101-Q106, Q109, Q167, Q256, Q301-Q308, Q313, Q503-Q507, Q511, Q512, Q653, Q803, Q805, Q853, Q855, Q903		DTC124ES
⚠	D1001		1SR35-100A
⚠	D1006		1SR35-100AVL
	D452, D801, D812		1SS252
	D161-D166, D251, D454, D455, D503-D506, D508, D510, D514, D515, D517, D518, D520, D521, D752, D802, D805-D811, D813-D818, D901-D903, D1009-D1011, D1300-D1305, D1701-D1705		1SS254
	D1002		MTZJ22A
	D1004		MTZJ3. 3B
	D753		MTZJ3. 9B
	D1003		MTZJ5. 1B
	D501		MTZJ9. 1A
	D1012		S2VB20

SWITCHES

Mark	No.	Description	Part No.
	S1201		RSA1002

COILS AND FILTERS

Mark	No.	Description	Part No.
	L451		LFA121K
	L651, L652	(L=4. 6MHz, Q=25, F=105KHz)	RTD1046
	L452	(F=105K)	RTD1062
	L101, L102	(L=562J)	RTF1099
	L301, L302	(L=103J)	RTF1102
	L303, L304	(L=123J)	RTF1124
	F251, F252		RTF1208

CAPACITORS

Mark	No.	Description	Part No.
	C659, C660		CCCSL101K500
	C161, C162		CCPUSL100J50
	C107-C110		CEANL100M16
	C111, C112		CEANL101M10
	C251-C254, C322, C325, C326, C703, C704		CEAS010M50
	C209, C210, C269, C281-C284, C317, C318, C667, C707, C708, C1016		CEAS100M50
	C291		CEAS101M16
	C1010		CEAS102M10
	C1018		CEAS220M50
	C1001		CEAS221M50
	C285, C286, C451, C458		CEAS330M16
	C914, C1004		CEAS330M35
	C1013, C1015		CEAS331M16
	C913		CEAS331M6R3
	C915, C916		CEAS3R3M50

Mark	No.	Description	Part No.
	C141, C142, C321, C323, C459, C513, C705, C713, C1024		CEAS470M16
	C1007		CEAS472M16
	C1011		CEAS472M25
	C117, C118, C313, C314		CEAS4R7M50
	C664		CEASR10M50
	C265, C266, C275, C315, C316, C917, C918		CEASR22M50
	C267, C268, C273, C274		CEASR33M50
	C293, C294		CFTXA103J50
	C261–C264		CFTXA222J50
	C191, C192, C454		CFTXA223J50
	C311, C312		CFTXA472J50
	C113, C114		CFTXA822J50
	C515		CGCYF104Z25
	C651, C652		CGCYX103K25
	C305, C306		CGCYX123K25
	C307, C308		CGCYX153K25
	C655, C656		CGCYX223K25
	C309, C310		CGCYX272K25
	C319, C320, C455-C457		CGCYX332K25
	C657, C658		CGCYX473K25
	C303, C304		CGCYX562K25
	C509, C510, C514, C1300, C1302		CKCYF103Z50
	C126, C139, C706, C709, C756, C911, C921, C1008, C1020–C1022, C1030, C1201–C1204, C1301, C1701		CKCYF473Z50
	C135–C138, C663, C701, C702, C711, C712, C723, C724		CKPUYB101K50
	C105, C106		CKPUYB102K50
	C301, C302		CKPUYB221K50
	C103, C104, C217, C218		CKPUYB271K50
	C123, C124		CKPUYB391K50
	C121, C122		CKPUYB471K50
	C101, C102, C133, C134, C801, C851		CKPUYB681K50
	C653, C654, C923, C924		CKPUYB821K50
	C453		CQPA752J100
	C661, C662(C=430P, V(DC)=500)		RCG1005

RESISTORAS

Mark	No.	Description	Part No.
	R518(68K)		RA11T683J
	R1701(22K)		RA5T223J
	R512(68K)		RA6T683J
	R341, R342(560Ω)		RCN1024
	R1702(11K/22K)		RCX1020
	R510(22K)		RCX1041
	R501(47K)		RCX1045
	R528(10K)		RCX1049
	R451		RD1/2LF010J
	R468		RD1/2LF100J
	R1001		RD1/2PMF152J
	R461		RD1/2LF680J
	R1020(47Ω)		RFA1/4L470J
	R1002(470Ω)		RS2LMF471J
	VR851(10K)		RCP1045
	VR101-VR104, VR301, VR302, VR651, VR652(22K)		RCP1046
	VR802, VR852(15K)		RCP1090
	VR2002(5K)		RCV1089
		OTHER RESISTORS	RD1/6PM□□□J

OTHERS

Mark	No.	Description	Part No.
	CN1503	CONNECTOR(35P)	52045-3545
	CN801	CONNECTOR(12P)	KPE12
	CN851	CONNECTOR(14P)	KPE14
	JA1300	MINI JACK	PKN1005
	JA701	PIN JACK(4P)	RKB-020
	JA1301, JA1302	REMOTE CONTROL JACK	RKN1004
	X501	CERAMIC RESONATOR(4.19MHz)	VSS1014
	CN101, CN102		B3B-EH
	CN451		B2B-EH

MAIN UNIT (FOR CT-W420R/HEM, HB, HEMXJ AND HBXJ TYPES)

SEMICONDUCTORS

Mark	No.	Description	Part No.
	IC701, IC902		BA15218
	IC301, IC1601		BA15218N
	IC101		CXA1115BP
	IC251		CXA1330S
⚠	IC1003, IC1004		NJM7812FA
⚠	IC1002		NJM78M05FA
	IC501		PD4442A
	IC1701		TC4050BP
	IC903		XRA10393N
⚠	Q1001		2SA1286
	Q513, Q802, Q808, Q809, Q852, Q858, Q1005, Q1010		2SA1309A
	Q460, Q461, Q804, Q854		2SB1238X
	Q456–Q458		2SC1815
	Q163, Q164, Q1006, Q1007		2SC3311A
	Q807, Q857		2SD1858X
	Q309–Q312, Q701, Q702		2SD2144S
	Q161, Q162		2SK373
	Q165		DTA114ES
	Q508, Q751		DTA114TS
	Q108, Q454, Q455, Q904		DTC114TS
	Q101–Q106, Q109, Q167, Q256, Q301–Q308, Q313, Q503–Q507, Q511, Q512, Q514, Q803, Q805, Q853, Q855, Q903		DTC124ES
⚠	D1001		1SR35-100A
⚠	D1006		1SR35-100AVL
	D452, D453, D801, D812		1SS252
	D161-D166, D251, D503-D506, D508, D509, D514-D518, D520, D521, D523-D526, D752, D802, D805-D811, D813-D818, D901-D903,		1SS254
⚠	D1009, D1010, D1011, D1300-D1305, D1701-D1705		
⚠	D1002		MTZJ22A
	D1004		MTZJ3.3B
	D753		MTZJ3.9B
	D1003		MTZJ5.1B
	D501		MTZJ9.1A
⚠	D1012		S2VB20

SWITCHES

Mark	No.	Description	Part No.
⚠	S1201		RSA1002

COILS AND FILTERS

Mark	No.	Description	Part No.
	L451		LFA121K
	L452	(F=105K)	RTD1068
	L101, L102	(L=562J)	RTF1099
	L301, L302	(L=103J)	RTF1102
	L303, L304	(L=123J)	RTF1124
	F251, F252		RTF1208

CAPACITORS

Mark	No.	Description	Part No.
	C461, C462		CCCSL101K500
	C161, C162		CCPUSL100J50
	C107-C110		CEANL100M16
	C111, C112		CEANL101M10
	C251-C254, C322, C325, C326, C703, C704		CEAS010M50
	C209, C210, C269, C281-C284, C317, C318, C707, C708, C1016		CEAS100M50
	C291, C1603, C1604		CEAS101M16
	C1010		CEAS102M10
	C1018		CEAS220M50
	C1001		CEAS221M50
	C285, C286, C451, C458		CEAS330M16
	C914, C1004		CEAS330M35
	C1013, C1015, C1605		CEAS331M16
	C913		CEAS331M6R3
	C915, C916		CEAS3R3M50
	C141, C142, C321, C323, C459, C513, C705, C713, C1024		CEAS470M16
	C1007		CEAS472M16
	C117, C118, C313, C314		CEAS4R7M50
	C265, C266, C275, C315, C316, C917, C918, C1601, C1602		CEASR22M50
	C267, C268, C273, C274		CEASR33M50
	C293, C294		CFTXA103J50
	C454		CFTXA183J50
	C261-C264		CFTXA222J50
	C191, C192		CFTXA223J50
	C311, C312		CFTXA472J50
	C113, C114		CFTXA822J50
	C515		CGCYF104Z25
	C305, C306		CGCYX123K25
	C307, C308		CGCYX153K25
	C309, C310		CGCYX272K25
	C319, C320, C456, C457		CGCYX332K25
	C455		CGCYX472K25
	C303, C304		CGCYX562K25
	C509, C510, C514, C1300, C1302		CKCYF103Z50
	C126, C139, C706, C709, C756, C911, C921, C1008, C1020-C1022, C1030, C1201-C1204, C1301, C1701, C2020		CKCYF473Z50
	C135-C138, C701, C702, C711, C712, C723, C724		CKPUYB101K50
	C105, C106		CKPUYB102K50
	C301, C302		CKPUYB221K50
	C103, C104, C217, C218		CKPUYB271K50
	C123, C124		CKPUYB391K50
	C121, C122		CKPUYB471K50
	C101, C102, C133, C134, C801, C851		CKPUYB681K50
	C923, C924		CKPUYB821K50
	C453		CQPA682J100
	C1011	(C=4700, VDC=35V)	RCH1089

RESISTORS

Mark	No.	Description	Part No.
⚠	R1021	(10Ω)	DCN1002
	R518	(68K)	RA11T683J
	R1701	(22K)	RA5T223J
	R512	(68K),	RA6T683J
	R341, R342	(560Ω)	RCN1024
	R1702	(11K/22K)	RCX1020
	R510	(22K)	RCX1041
	R501	(47K)	RCX1045
	R528	(10K)	RCX1049
	R451, R468		RD1/2LF010J
⚠	R1020		RD1/2LF010J
	R461		RD1/2LF181J
	R470		RD1/2LF201J
	R1001		RD1/2PMF152J
	R1609	(220Ω)	RS2LMF221J
	R1002	(470Ω)	RS2LMF471J
	VR851	(10K)	RCP1045
	VR101-VR104, VR302, VR302	(22K)	RCP1046
	VR451, VR452	(100K)	RCP1048
	VR802, VR852	(15K)	RCP1090
	VR2002	(5K)	RCV1089
		OTHER RESISTORS	RD1/6PM□□□J

OTHERS

Mark	No.	Description	Part No.
	CN1503	CONNECTOR (35P)	52045-3545
	CN801	CONNECTOR (12P)	KPE12
	CN851	CONNECTOR (14P)	KPE14
	JA1300	MINI JACK	PKN1005
	JA701	PIN JACK (4P)	RKB-020
	JA2003	HEADPHONE JACK	RKN1002
	JA1301, JA1302	REMOTE CONTROL JACK	RKN1004
	X501	CERAMIC RESONATOR (4.19MHz)	VSS1014

LED UNIT (FOR CT-W420R/HEM, HB, HEMXJ AND HBXJ TYPES ONLY)

SEMICONDUCTORS

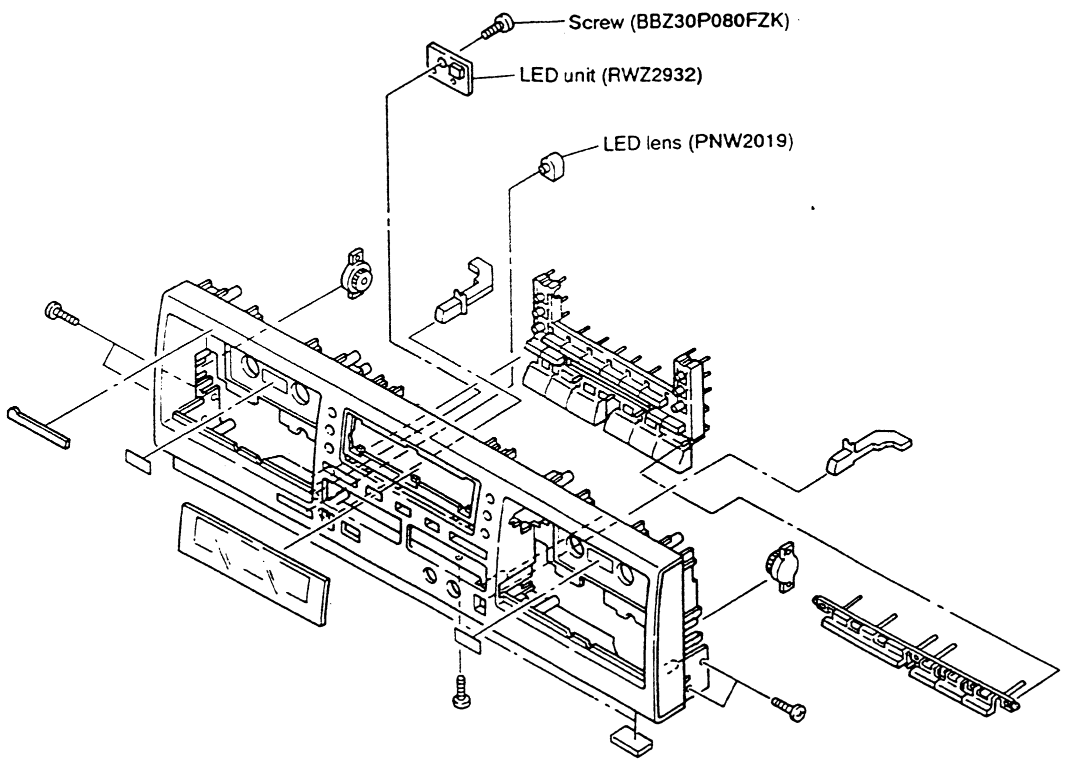
Mark	No.	Description	Part No.
	D527		SEL6C10R

RESISTORS

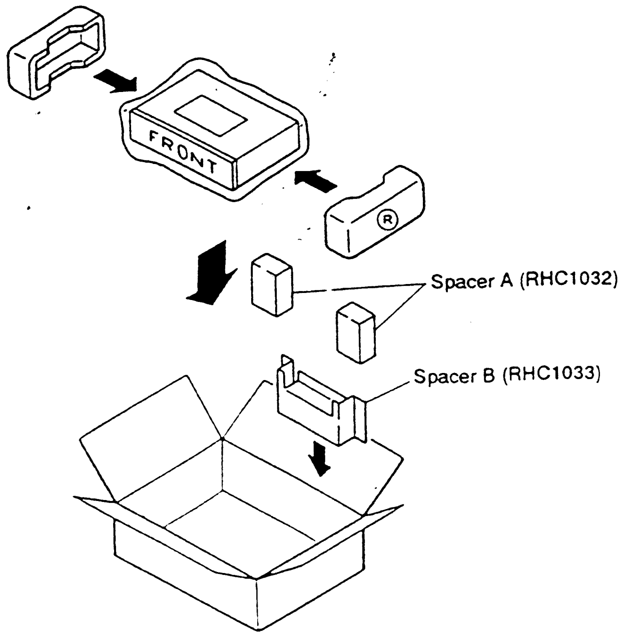
Mark	No.	Description	Part No.
	R521		RD1/6PM330J

1.2 FOR LED UNIT, LED LENS AND SPACERS

• Exploded view (For CT-W420R/HEM, HB, HEMXJ and HBXJ types)


Screw (BBZ30P080FZK)
LED unit (RWZ2932)
LED lens (PNW2019)

• Packing (CT-W420R/HB and HBXJ types)


FRONT
Spacer A (RHC1032)
Spacer B (RHC1033)

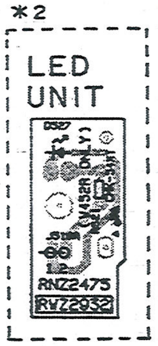
• PCB diagrams

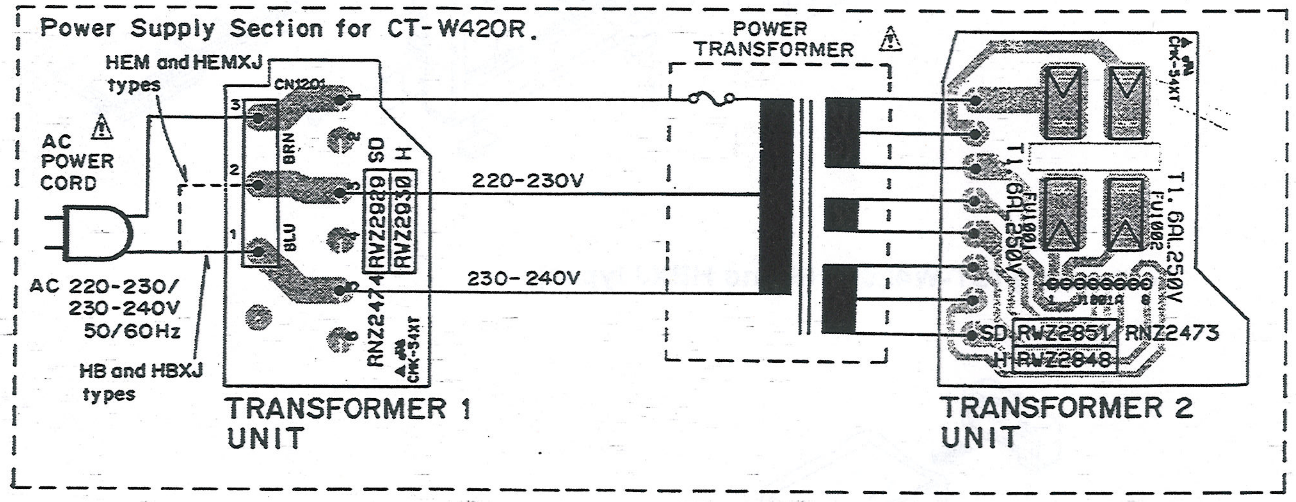
- View from component side

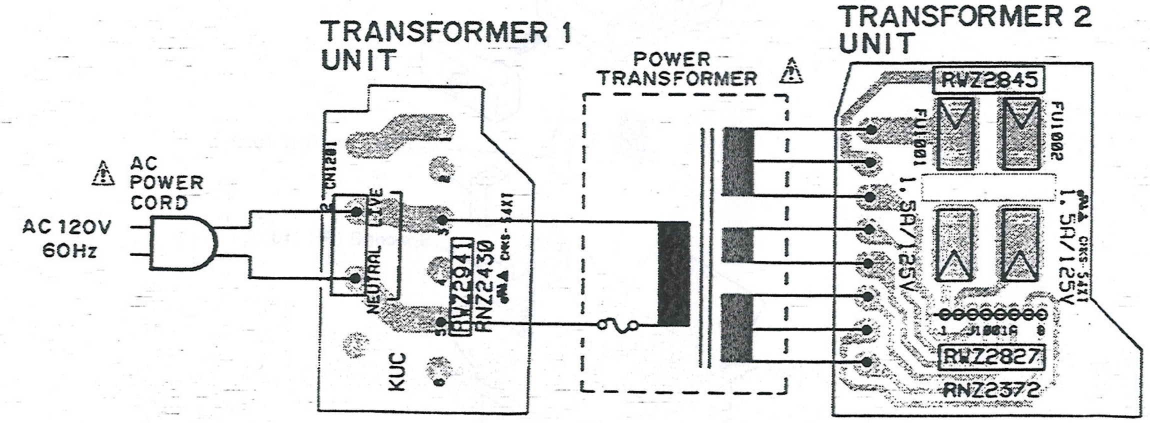
Line Voltage Selection

Line voltage can be changed with the following steps.
1. Disconnect the AC power cord.
2. Remove the Top cover
3. Change the connection of the TRANSFORMER 1 UNIT primary pins.
4. Stick the line voltage label on the rear panel.

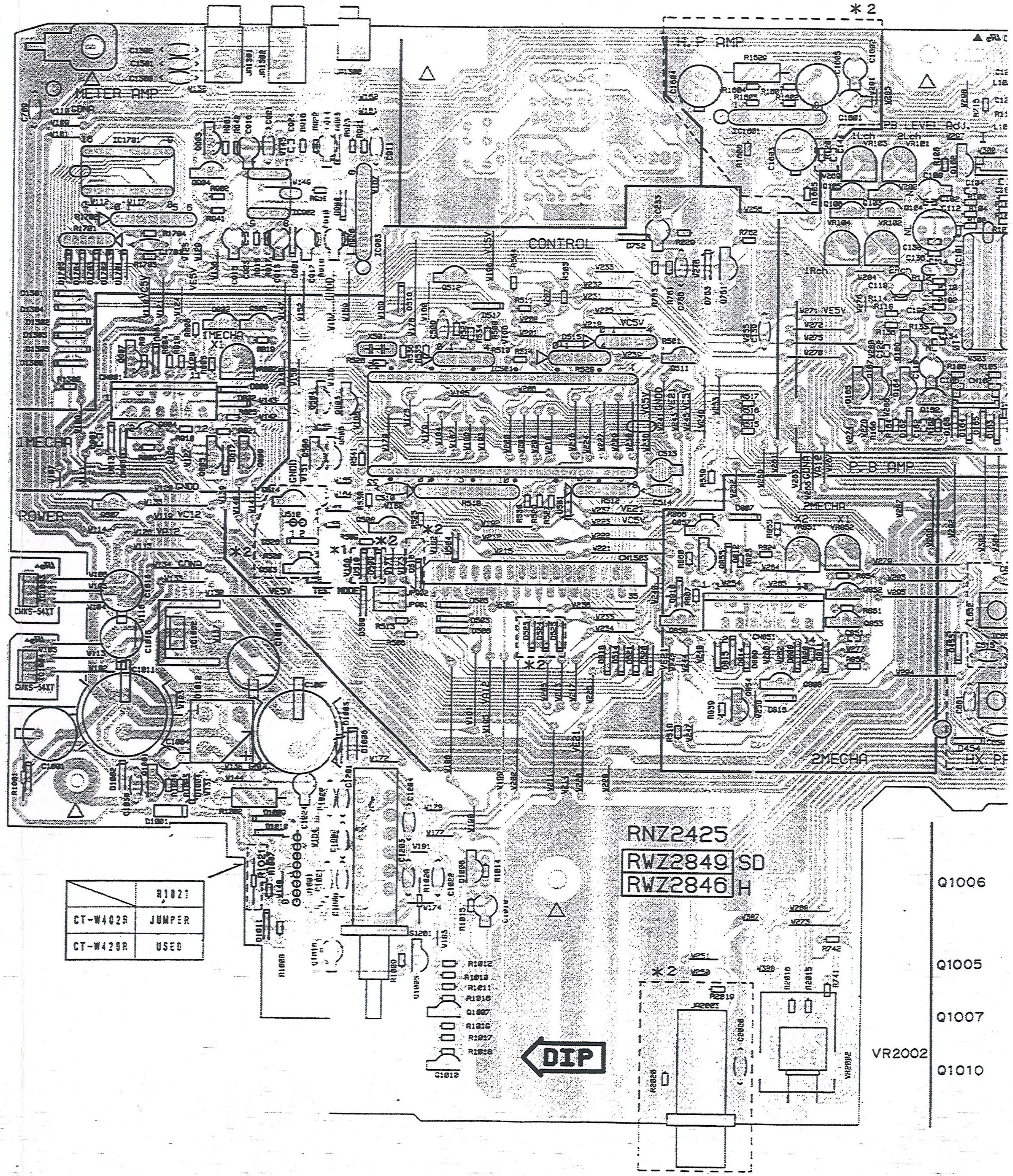
Parts No	Description
AAX-193	220 V label
AAX-192	240 V label


*2
LED UNIT
RNZ2475
RWZ2932

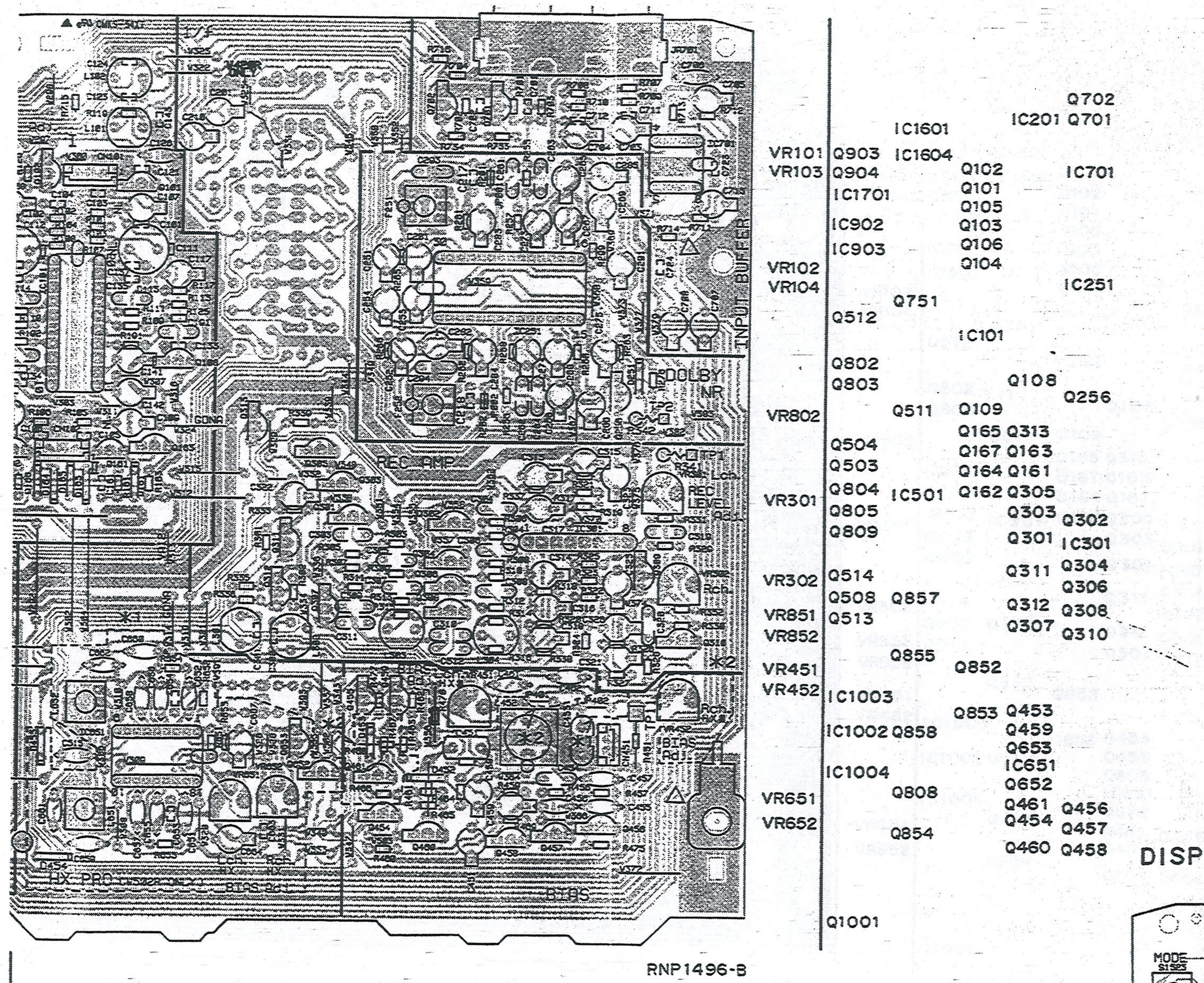

Power Supply Section for CT-W420R.
HEM and HEMXJ types
AC POWER CORD
AC 220-230/ 230-240V 50/60Hz
HB and HBXJ types
CN1201
BRN
BLU
SD
H
RWZ2929
RWZ2930
RNZ2424
CKM-34XT
220-230V
230-240V
POWER TRANSFORMER
T1.6AL 250V
FU1001
FU1002
SD RWZ2851
RNZ2473
H RWZ2848
TRANSFORMER 1 UNIT
TRANSFORMER 2 UNIT


TRANSFORMER 1 UNIT
POWER TRANSFORMER
TRANSFORMER 2 UNIT
AC POWER CORD
AC 120V 60Hz
CN1201
LIVE
NEUTRAL
RWZ2941
RNZ2430
CKM-34XT
KUC
RWZ2845
FU1001
FU1002
1.5A/125V
RWZ2827
RNZ2372

MAIN UNIT (RWZ 2843: CT-W402R)
(RWZ 2846: CT-W420R)


*2
METER AMP
H.P. AMP
PB LEVEL ADJ.
CONTROL
1MECHA
POWER
P.B AMP
2MECHA
CKS-34XT
RNZ2425
RWZ2849 SD
RWZ2846 H
DIP
*2
Q1006
Q1005
Q1007
VR2002
Q1010

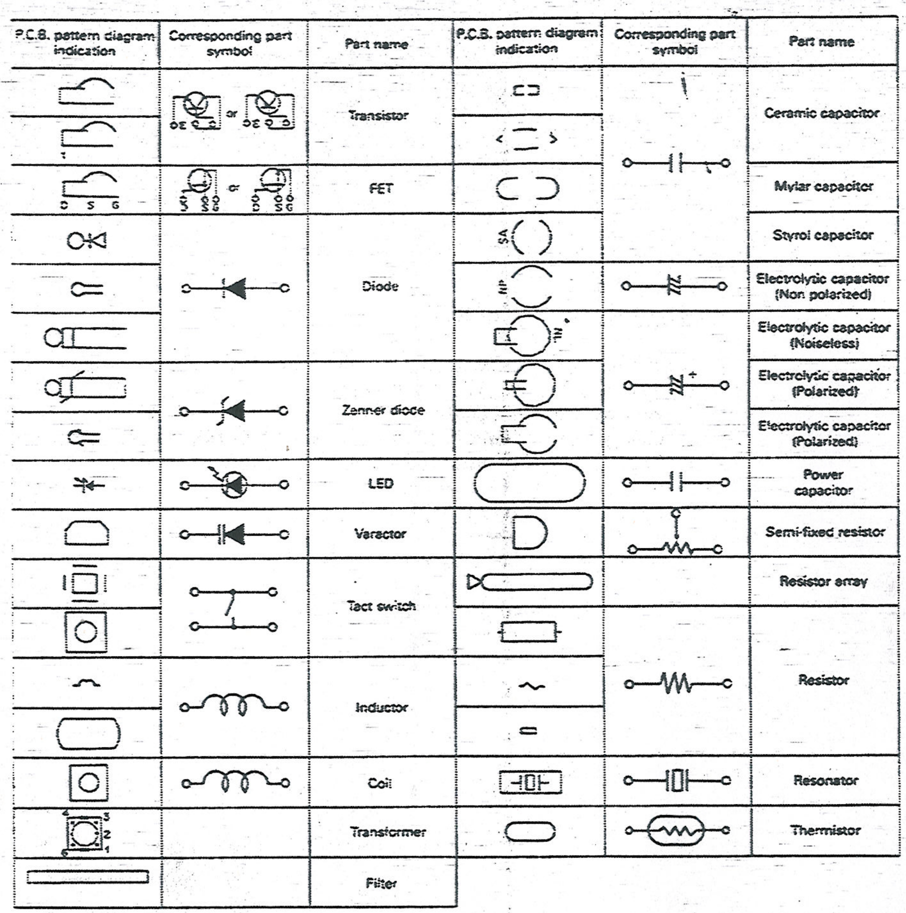
	R1021
CT-W402R	JUMPER
CT-W420R	USED


INPUT BUFFER
DOLBY NR
REC AMP
REC LEVEL
HX PRO
BIAS
*1
*2
VR101 Q903 IC1601 IC1604
VR103 Q904
IC1701
IC902
IC903
VR102
VR104
Q751
Q512
Q802
Q803
VR802 Q511
Q504
Q503
VR301 Q804 IC501
Q805
Q809
VR302 Q514
Q508 Q857
VR851 Q513
VR852
Q855
VR451
VR452 IC1003
IC1002 Q858
IC1004
Q808
VR651
VR652
Q854
Q1001
IC201 Q702
Q701
Q102
Q101
Q105
Q103
Q106
Q104
IC701
IC251
IC101
Q108
Q256
Q109
Q165 Q313
Q167 Q163
Q164 Q161
Q162 Q305
Q303
Q302
Q301
IC301
Q311
Q304
Q306
Q312
Q308
Q307
Q310
Q852
Q853 Q453
Q459
Q653
IC651
Q652
Q461 Q456
Q454 Q457
Q460 Q458
Q1006
Q1005
Q1007
Q1010

RNP1496-B

NOTE:

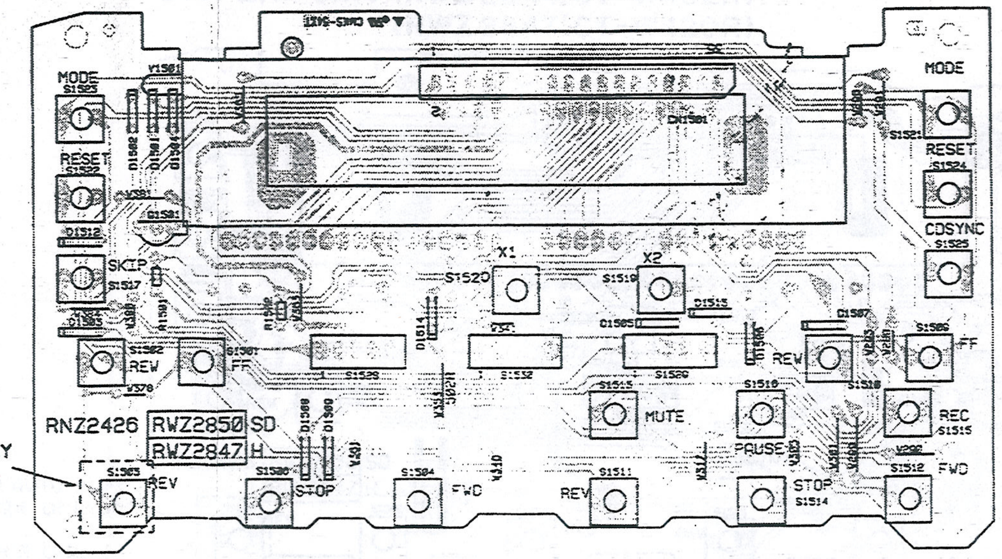
*1	CT-W402R ONLY
*2	CT-W420R ONLY



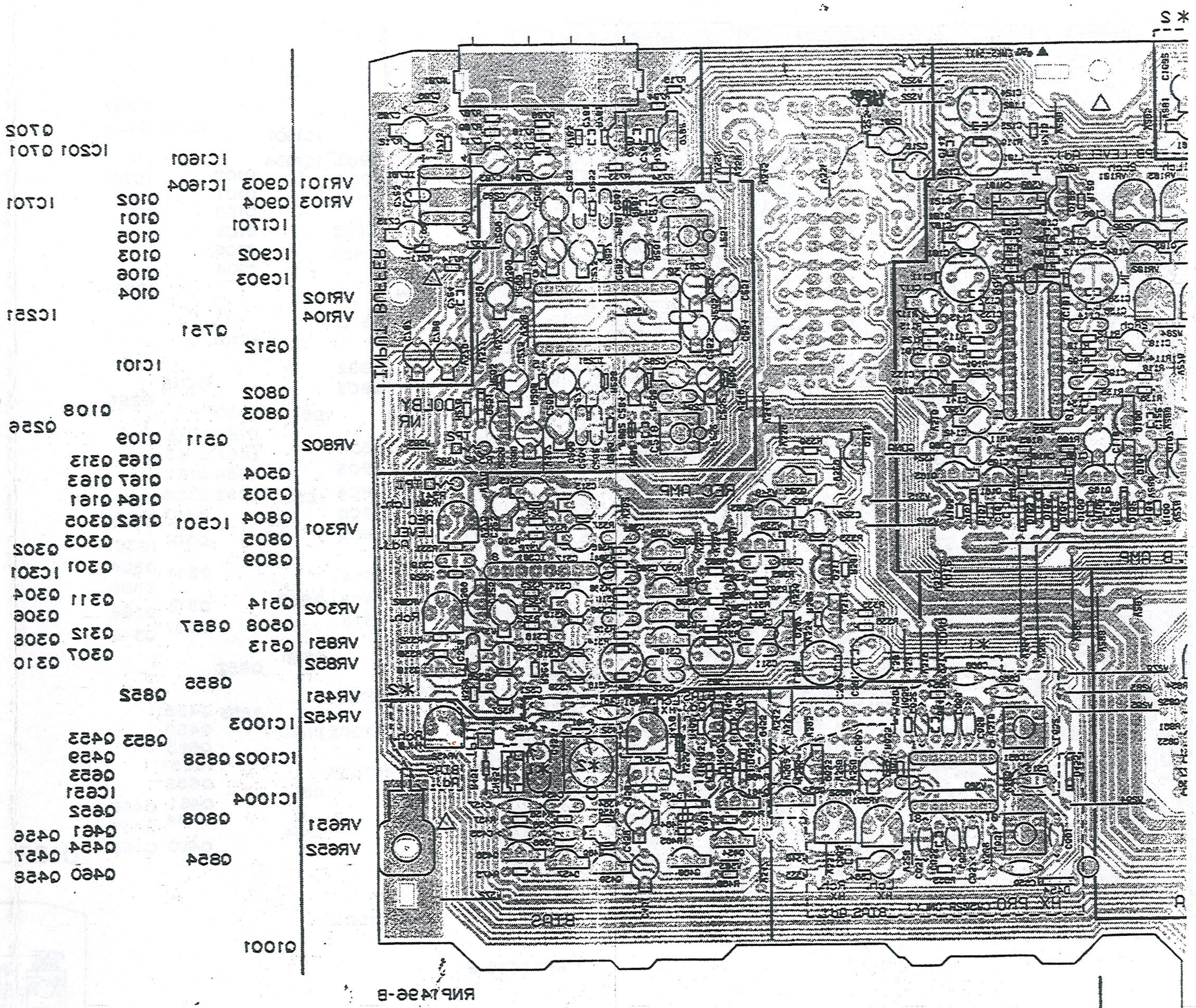
P.C.B. pattern diagram indication	Corresponding part symbol	Part name	P.C.B. pattern diagram indication	Corresponding part symbol	Part name
		Transistor			Ceramic capacitor
		FET			Mylar capacitor
		Diode			Styrol capacitor
					Electrolytic capacitor (Non polarized)
					Electrolytic capacitor (Noiseless)
		Zenner diode			Electrolytic capacitor (Polarized)
					Electrolytic capacitor (Polarized)
		LED			Power capacitor
		Varactor			Semi-fixed resistor
		Tact switch			Resistor array
		Inductor			Resistor
		Coil			Resonator
		Transformer			Thermistor
		Filter			

1. This P.C.B. connection diagram is viewed from the parts mounted side.
2. The parts which have been mounted on the board can be replaced with those shown with the corresponding wiring symbols listed in the above Table.
3. The capacitor terminal marked with ▭ shows negative terminal.
4. The diode marked with O shows cathode side.
5. The transistor terminal marked with ▭ shows emitter.

DISPLAY UNIT (RWZ2844: CT-W402R)
(RWZ2847: CT-W420R)


MODE
S1523
RESET
S1522
SKIP
S1517
REW
S1502
S1501
FF
V1501
D1502
D1501
D1504
D1501
D1512
D1503
DN1501
X1
S1520
X2
S1519
D1515
D1505
D1514
D1507
S1528
S1532
S1526
S1515
MUTE
S1510
PAUSE
REW
S1518
S1506
FF
MODE
S1521
RESET
S1524
CDSYNC
S1525
REC
S1515
RNZ2426
RWZ2850 SD
RWZ2847 H
D1508
D1509
S1503
REV
S1508
STOP
S1504
FWD
S1511
REV
STOP
S1514
S1512
FWD

REV AND AUTO PLAY
(CT-W402R ONLY)
REV
(CT-W420R ONLY)


*2
Q702
IC201 Q701
IC701
IC251
IC101
Q108
Q256
Q313
Q163
Q161
Q305
Q302
IC301
Q304
Q306
Q308
Q310
Q453
Q459
Q653
IC651
Q652
Q461 Q456
Q454
Q457
Q460 Q458
Q102
Q101
Q105
Q103
Q106
Q104
Q109
Q165
Q167
Q164
Q162
Q303
Q301
Q311
Q312
Q307
Q852
Q853
IC1601
IC1604
Q751
Q511
IC501
Q857
Q855
Q858
Q808
Q854
Q903
Q904
IC1701
IC902
IC903
Q512
Q802
Q803
Q504
Q505
Q804
Q805
Q809
Q514
Q508
Q513
IC1003
IC1002
IC1004
Q1001
VR101
VR103
VR102
VR104
VR802
VR301
VR302
VR851
VR852
VR451
VR452
VR651
VR652
INPUT BUFFER
DOLBY NR
REC AMP
PB AMP
RNP1496-B

Q1006

Q1005

Q1007

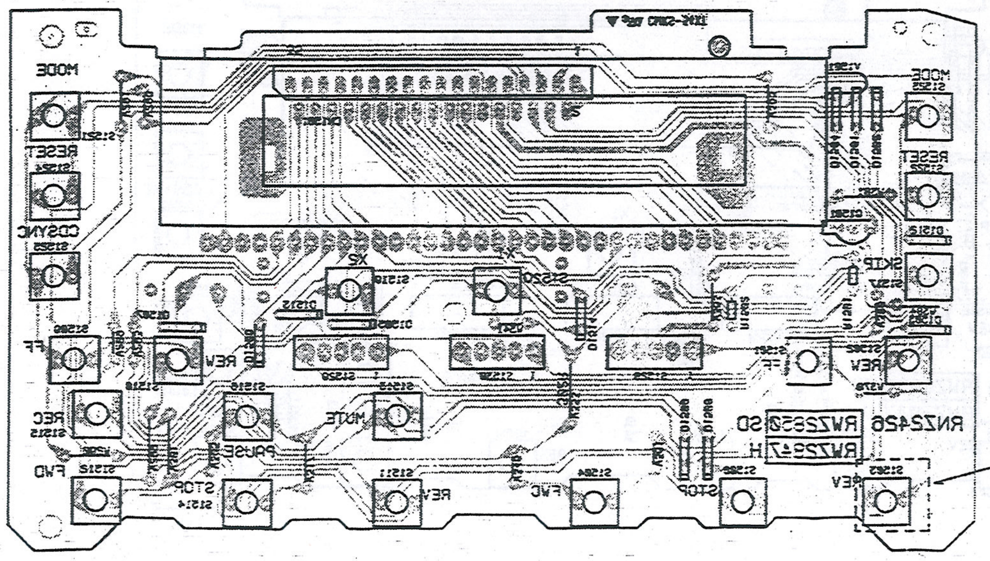
Q1010

VR2002

NOTE:

*1	CT-W402R ONLY
*2	CT-W420R ONLY

DISPLAY UNIT (RWZ2844:CT-W402R)
(RWZ2847:CT-W420R)

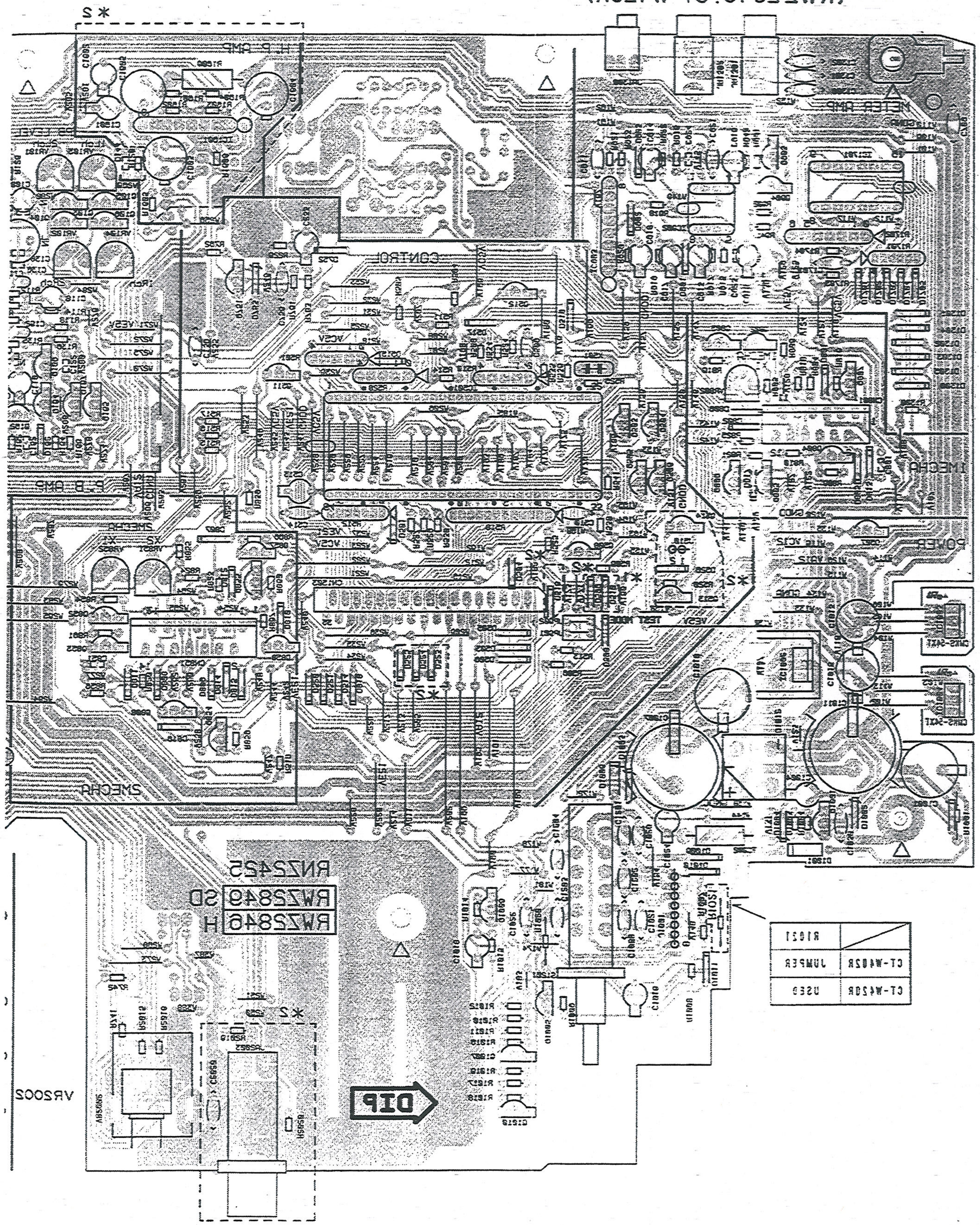

MODE
RESET
CDSYNC
FF
REC
FWD
REV
PAUSE
STOP
MUTE
SKIP
RNZ2426
RWZ2653 SD
RWZ2477 H

REV AND AUTO PLAY
(CT-W402R ONLY)
REV
(CT-W420R ONLY)

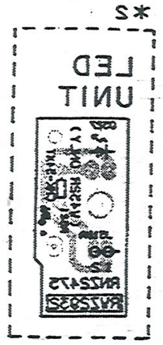
● PCB diagrams

● View from soldering side

MAIN UNIT (RWZ2843: CT-W402R)
(RWZ2846: CT-W420R)


*2
H.P AMP
METER AMP
CONTROL
P.B AMP
MECHA
POWER
TEST MODE
2MECHA
1MECHA
RNZ2425
RWZ2849 SD
RWZ2846 H
DIP
VR2002

	R1021
CT-W402R	JUMPER
CT-W420R	USED

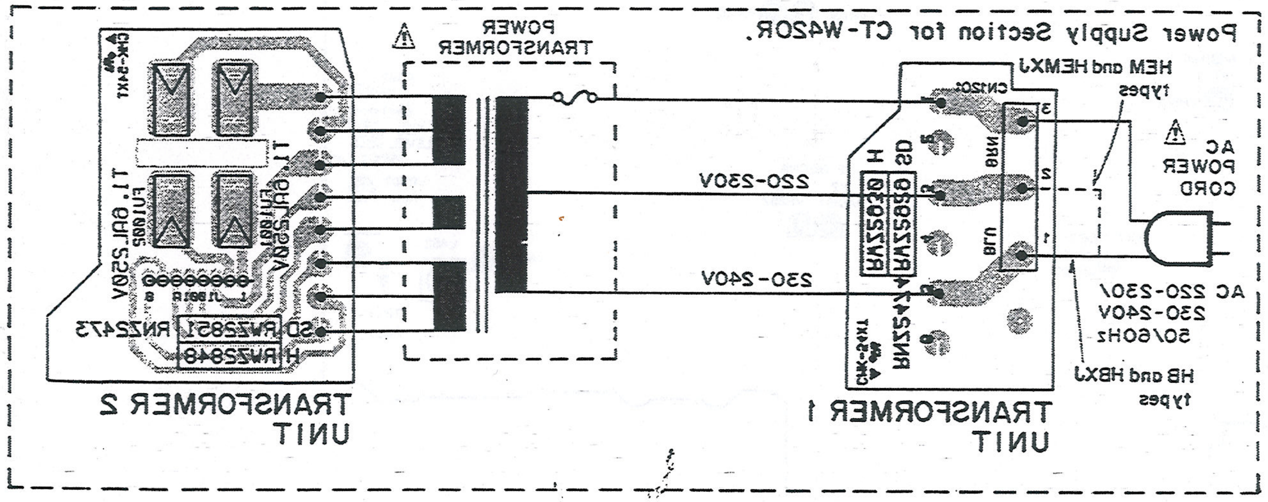

*2
LED UNIT
RNZ2475
RWZ2833

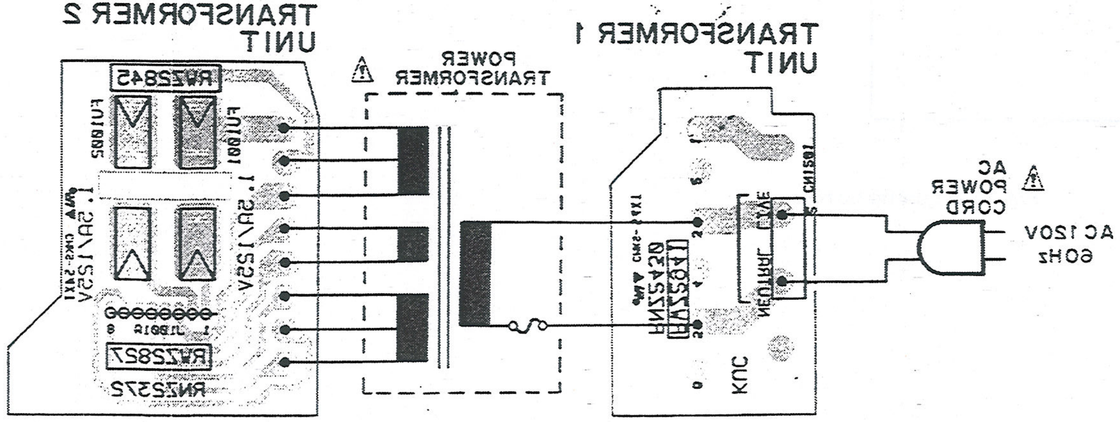
Line Voltage Selection

Line voltage can be changed with the following steps.
1. Disconnect the AC power cord.
2. Remove the Top cover
3. Change the connection of the TRANSFORMER 1 UNIT primary pins.
4. Stick the line voltage label on the rear panel.

Parts No	Description
AAX-193	220 V label
AAX-192	240 V label

Power Supply Section for CT-W420R.


HEM and HEMXJ types
AC POWER CORD
AC 220-230V/ 230-240V 50/60Hz
HB and HBXJ types
220-230V
230-240V
POWER TRANSFORMER
TRANSFORMER 1 UNIT
TRANSFORMER 2 UNIT
RWZ2850 SD
RWZ2847 H
RNZ2474
RNZ2473
RWZ2851 SD
RWZ2848 H
T1.6AL 250V
FU1801
FU1802


TRANSFORMER 2 UNIT
TRANSFORMER 1 UNIT
POWER TRANSFORMER
AC POWER CORD
AC 120V 60Hz
RWZ2845
RWZ2827
RNZ2572
FU1801
FU1802
T1.5A/125V
HNZ2420
LAZ2420
KNC
NEUTRAL
LINE

1.5 ADJUSTMENTS

- CT-W420R/HEM, HB, HBXJ, HEMXJ and CT-W502R/KUXJ have the same adjustment except for the following:

RECORDING SECTION

1. Recording Bias Adjustment

- After the adjustment, caution should be exercised so as not to become under bias by checking the distortion rate.

No.	Mode	Input signal & test tape	Adjustment location		Measuring location	Adjustment value	Remarks
1.	REC	Record the 315 Hz and 6.3 kHz signals at −20 dBV input level and playback. (STD-631)	Deck II	VR451(Lch) VR452(Rch)	LINE OUT	Repeatedly record, playback and adjust so that the playback level of 6.3 kHz signal becomes 0.5 dB ± 0.5 dB when compared with the 315 Hz signal.	

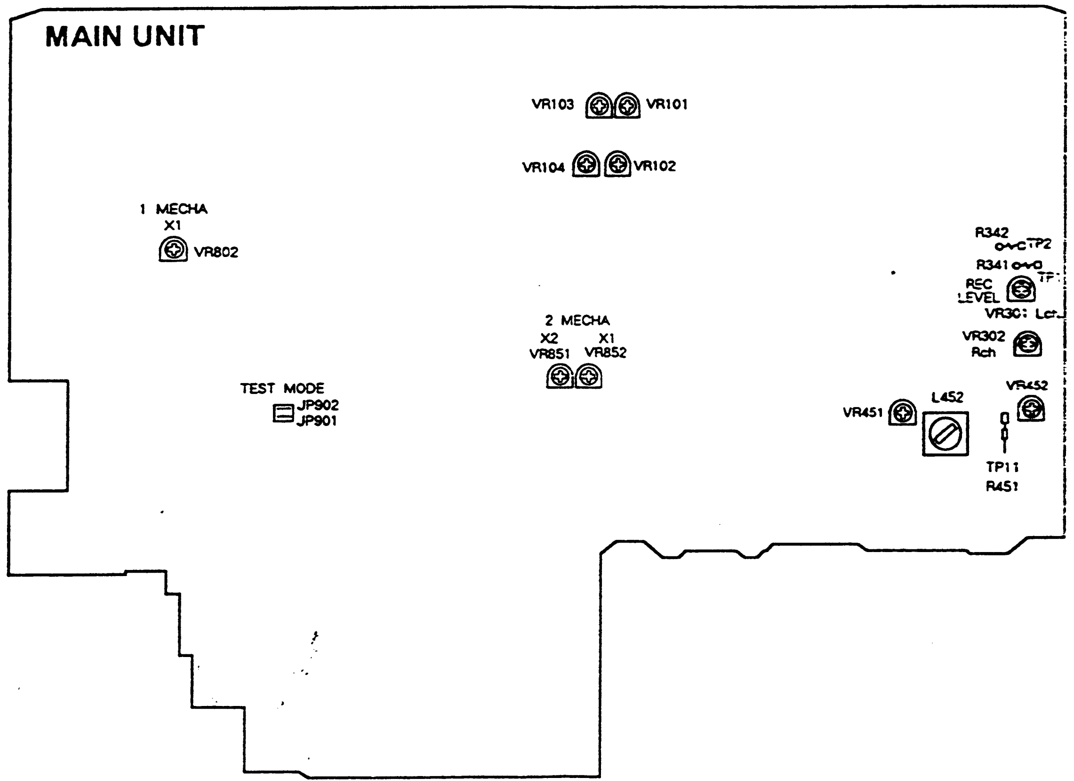
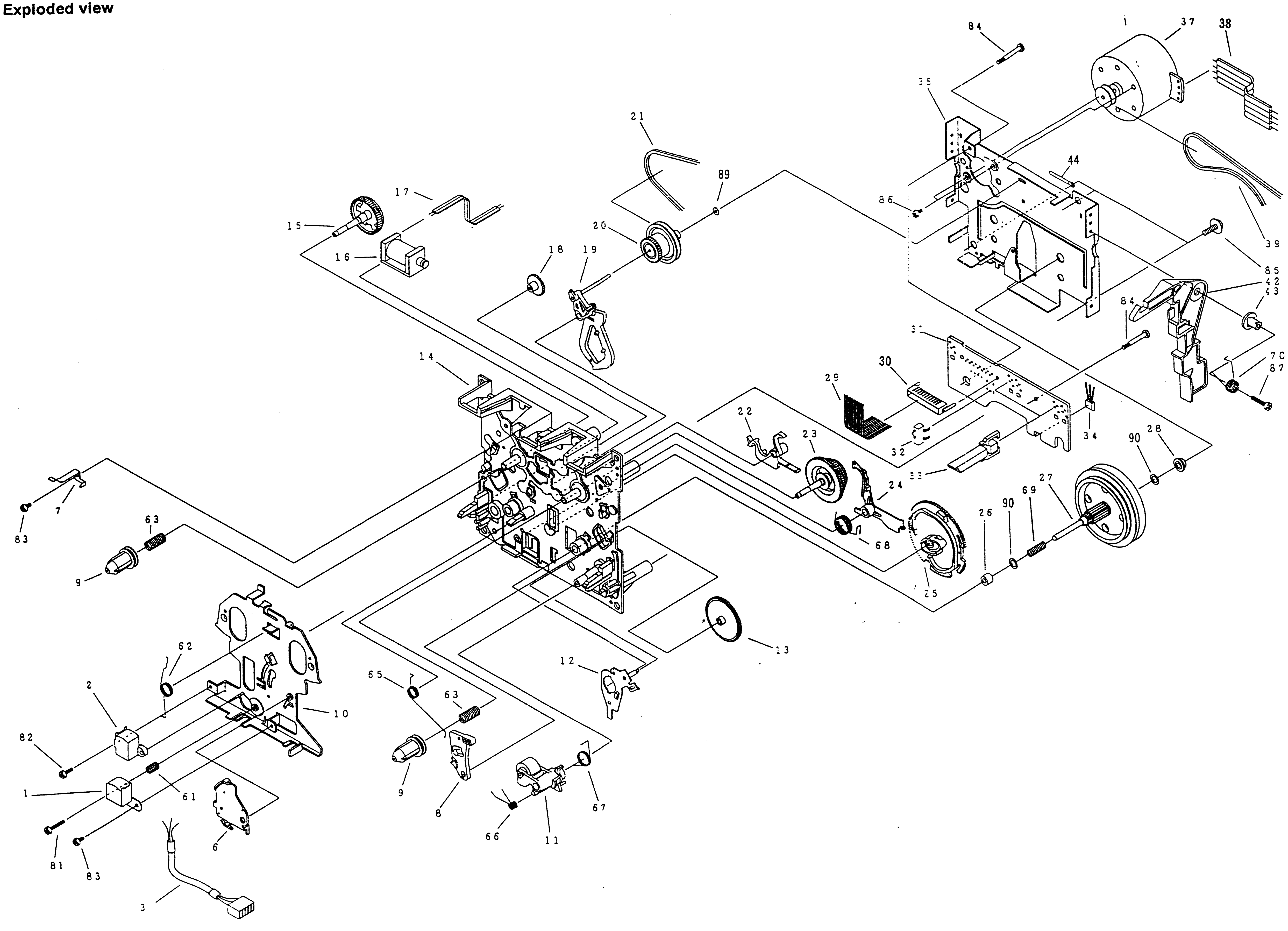

MAIN UNIT
VR103
VR101
VR104
VR102
1 MECHA
X1
VR802
2 MECHA
X2
X1
VR851
VR852
TEST MODE
JP902
JP901
R342
TP2
R341
TP
REC
LEVEL
VR30
Lc
VR302
Rch
VR452
VR451
L452
TP11
R451

Fig. 1 Adjusting points

1.3 MECHANISM UNIT (DECK I)
(RYM1202 : FOR CT-W402R/KUXJ TYPE)

- **Exploded view**


84
37
38
35
21
89
44
17
15
86
20
16
18
19
39
85
42
43
14
31
30
29
84
70
87
22
23
34
90
28
32
33
24
27
26
90
69
7
83
63
68
9
25
13
62
12
2
10
65
63
82
9
61
1
8
67
66
11
6
81
83
3

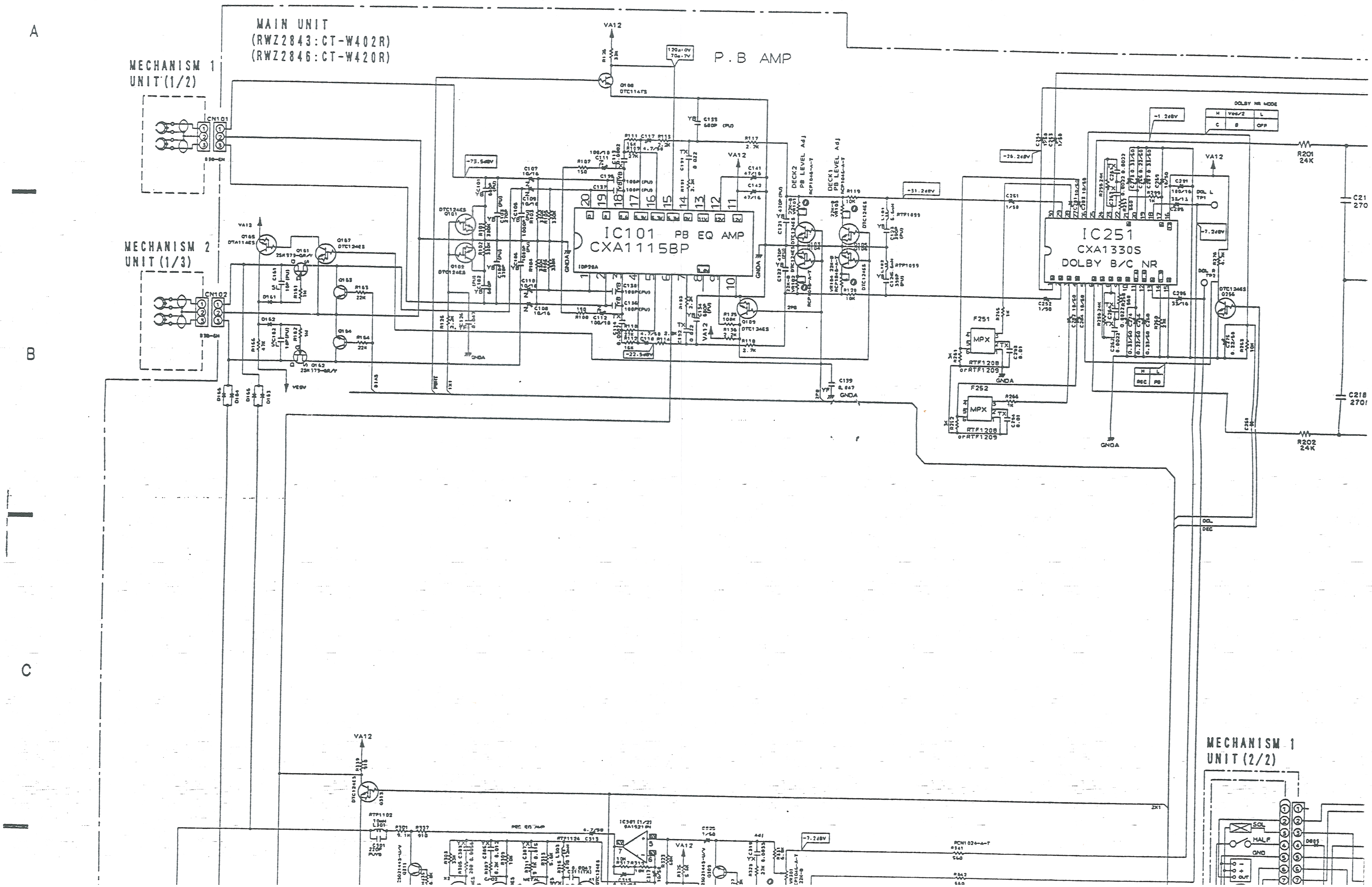
Parts List

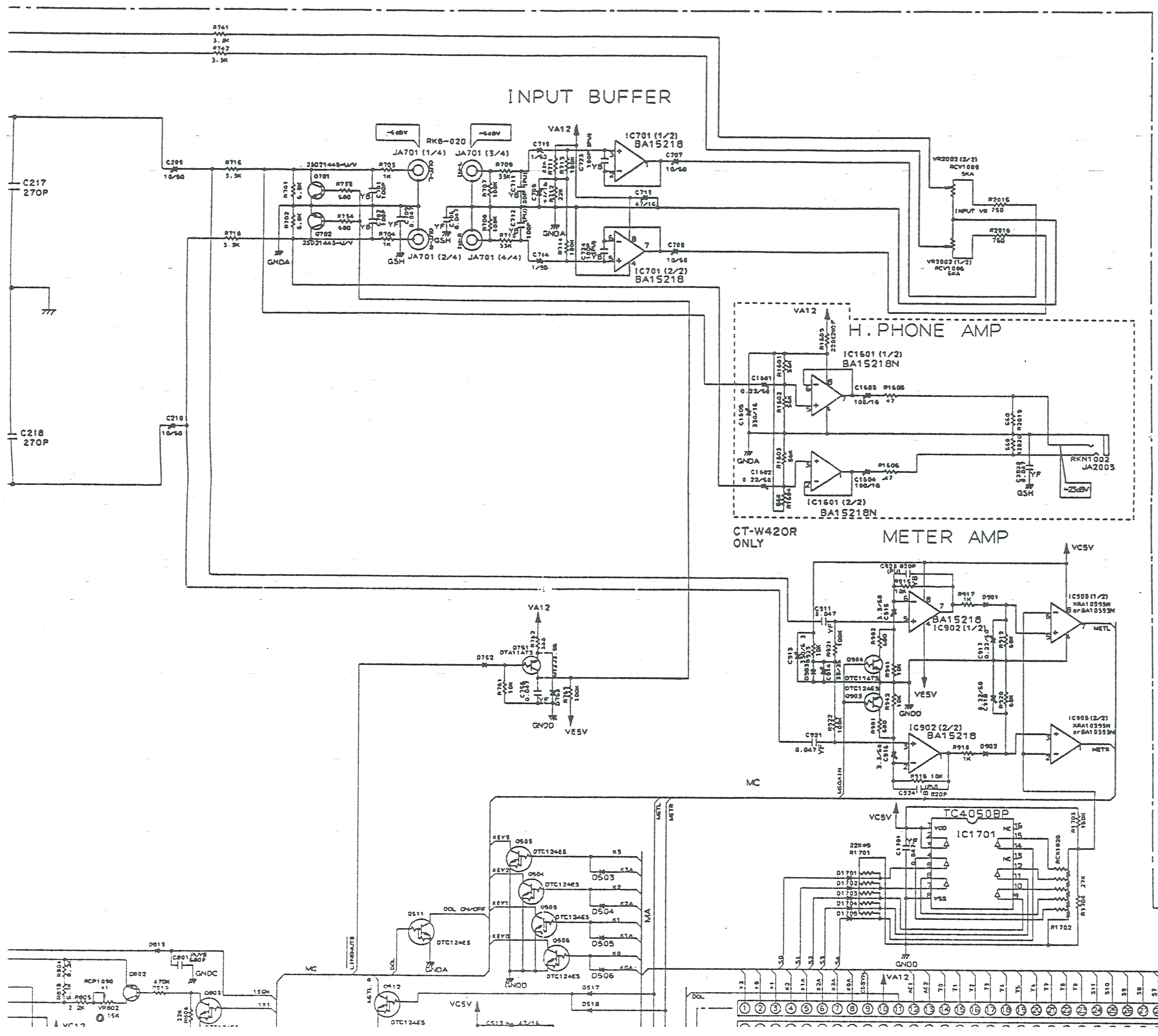
Mark	No.	Description	Part No.
	1	R/P HEAD	RPB1026
	2	DUMMY HEAD	RNK1458
	3	WIRE HEAD	RKP1577
	6	ASS'Y ARM ASSIST	RXA1401
	7	SPRING CASSETTE	RBK1039
	8	EJECT LOCK	RNK1718
	9	CAP REEL	RNK1719
	10	CHASSIS HEAD	RNE1439
	11	ASS'Y PINCH ARM R	RXA1404
	12	ARM PLAY R	RNK1868
	13	GEAR PLAY	RNK1867
	14	CHASSIS OS.	RXA1417
	15	REEL GEAR	RNK1726
⚠	16	SOLENOID	RXP1020
	17	WIRE	RDC1006
	18	GEAR FF	RNK1723
	19	ASS'Y ARM FR	RXA1412
	20	ASS'Y PULLEY FR	RXA1413
	21	BELT FR	REB1158
	22	ARM BRAKE	RNK1724
	23	ASS'Y SUB REEL R	RXA1408
	24	ARM TRIGGER	RNK1722
	25	GEAR CAM	RNK1725
	26	SHAFT HOLDER	RNG1049
	27	ASS'Y FLYWHEEL R	RXA1424
	28	SHAFT HOLDER	RNG1004
	29	WIRE (12P)	RDD1249
NSP	30	HOLDER WIRE	RNK1683
	31	P.C. BOARD	RNP1347
	32	SWITCH MODE	RSN1020
	33	SWITCH (LEAF)	RSN1019
	34	HALL IC.	DN6851A
	35	BRACKET FW	RNE1438
	37	ASS'Y MOTOR	RXM1060
NSP	38	WIRE	RDD1012
	39	BELT MAIN	REB1160
	42	EJECT LEVER R	RNK1811
	43	COLLAR	RNK1704
	44	KEEP WIRE	RNH1004
	61	SPRING (AZIMUTH)	RBH1296
	62	SPRING	RBH1284
	63	SPRING	RBH1286
	64	......	
	65	SPRING	RBH1285
	66	SPRING	RBH1298
	67	SPRING	RBH1290
	68	SPRING	RBH1295
	69	SPRING	RBH1325
	70	SPRING	RBH1320
	81	SCREW (AZIMUTH)	RBA1096
	82	SCREW	RBA1029
	83	SCREW	PCZ20P040FMC
	84	SCREW	RBA1093
	85	SCREW	RBA1094
	86	SCREW	RBA1086
	87	SCREW	RBA1095
	88	......	
	89	WASHER	RBF1046
	90	WASHER	WA26D047D013

Note : No. 45 – 60 are not used.

1.4 FOR MAIN UNIT, DISPLAY UNIT, TRANSFORMER 1 UNIT, TRANSFORMER 2 UNIT AND LED UNIT

- Schematic diagram


A
B
C
MAIN UNIT
(RWZ2843:CT-W402R)
(RWZ2846:CT-W420R)
MECHANISM 1 UNIT (1/2)
MECHANISM 2 UNIT (1/3)
CN101
CN102
VA12
Q106 DTC114TS
P.B AMP
IC101 CXA1115BP PB EQ AMP
DECK2 PB LEVEL Adj
DECK1 PB LEVEL Adj
GNDA
IC251 CXA1330S DOLBY B/C NR
DOLBY NR MODE
F251 MPX
F252 MPX
RTF1208 or RTF1209
R201 24K
R202 24K
C218
MECHANISM 1 UNIT (2/2)
SOL
HALF
GND
IC301 (1/2)
REC EQ AMP


5
6
7
8
9
INPUT BUFFER
R741 3.3K
R742 3.3K
C217 270P
C218 270P
C209 10/50
C210 10/50
R715 3.3K
R716 3.3K
2SD2144S-U/V
Q701
Q702
RKB-020
JA701 (1/4)
JA701 (2/4)
JA701 (3/4)
JA701 (4/4)
VA12
IC701 (1/2) BA15218
IC701 (2/2) BA15218
C707 10/50
C708 10/50
C713 47/16
C714 1/50
GNDA
GSH
VR2002 (2/2) RCV1089 5KA
VR2002 (1/2) RCV1089 5KA
INPUT VR
R2015 750
R2016 750
H.PHONE AMP
IC1601 (1/2) BA15218N
IC1601 (2/2) BA15218N
R1605 47
R1606 47
RKN1002
JA2003
CT-W420R ONLY
METER AMP
VC5V
IC902 (1/2) BA15218
IC902 (2/2) BA15218
IC903 (1/2) XRA10393N or BA10393N
IC903 (2/2) XRA10393N or BA10393N
METL
METR
VE5V
GNDD
Q751 DTA114ES
Q903
Q904
MC
TC4050BP
IC1701
R1701
R1702
D1701
D1702
D1703
D1704
D1705
Q505 DTC124ES
Q504 DTC124ES
Q503 DTC124ES
Q506 DTC124ES
Q511 DTC124ES
D503
D504
D505
D506
DOL ON/OFF
KEY1
KEY2
KEY3
KEY4
RCP1090
VR802 15K
Q802
Q803
Q512 DTC124ES
D517
D518
VC5V
CN1503 52045-3545
CN1501

Note: (Type 6)

1. When ordering service parts, be sure to refer to "PARTS LIST of EXPLODED VIEWS" or "PCB PARTS LIST".
2. Since these are basic circuits, some parts of them or the values of some components may be changed for improvement.
3. RESISTORS:
   Unit: k:kΩ, M:MΩ, or Ω unless otherwise noted.
   Rated power: 1/4W, 1/6W, 1/8W, 1/10W unless otherwise noted.
   Tolerance: (F): ±1%, (G): ±2%, (K): ±10%, (M): ±20% or ±5% unless otherwise noted.
4. CAPACITORS:
   Unit: p:pF or µF unless otherwise noted.
   Ratings: capacitor (µF)/ voltage (V) unless otherwise noted.
   Rated voltage: 50V except for electrolytic capacitors.
5. COILS:
   Unit: m:mH or µH unless otherwise noted.
6. VOLTAGE AND CURRENT:
   ▭ : DC voltage (V) in STOP mode unless otherwise noted.
   ⇦ mA or ← mA: DC current in STOP mode unless otherwise noted.
7. OTHERS:
   - ➡ : Signal route.
   - ⊘ : Adjusting point.
   - ▼ (Red) : Measurement point.
   - The ⚠ mark found on some component parts indicates the importance of the safety factor of the parts. Therefore, when replacing, be sure to use parts of identical designation.
8. SWITCHES (Underline indicates switch position):

MAIN UNIT

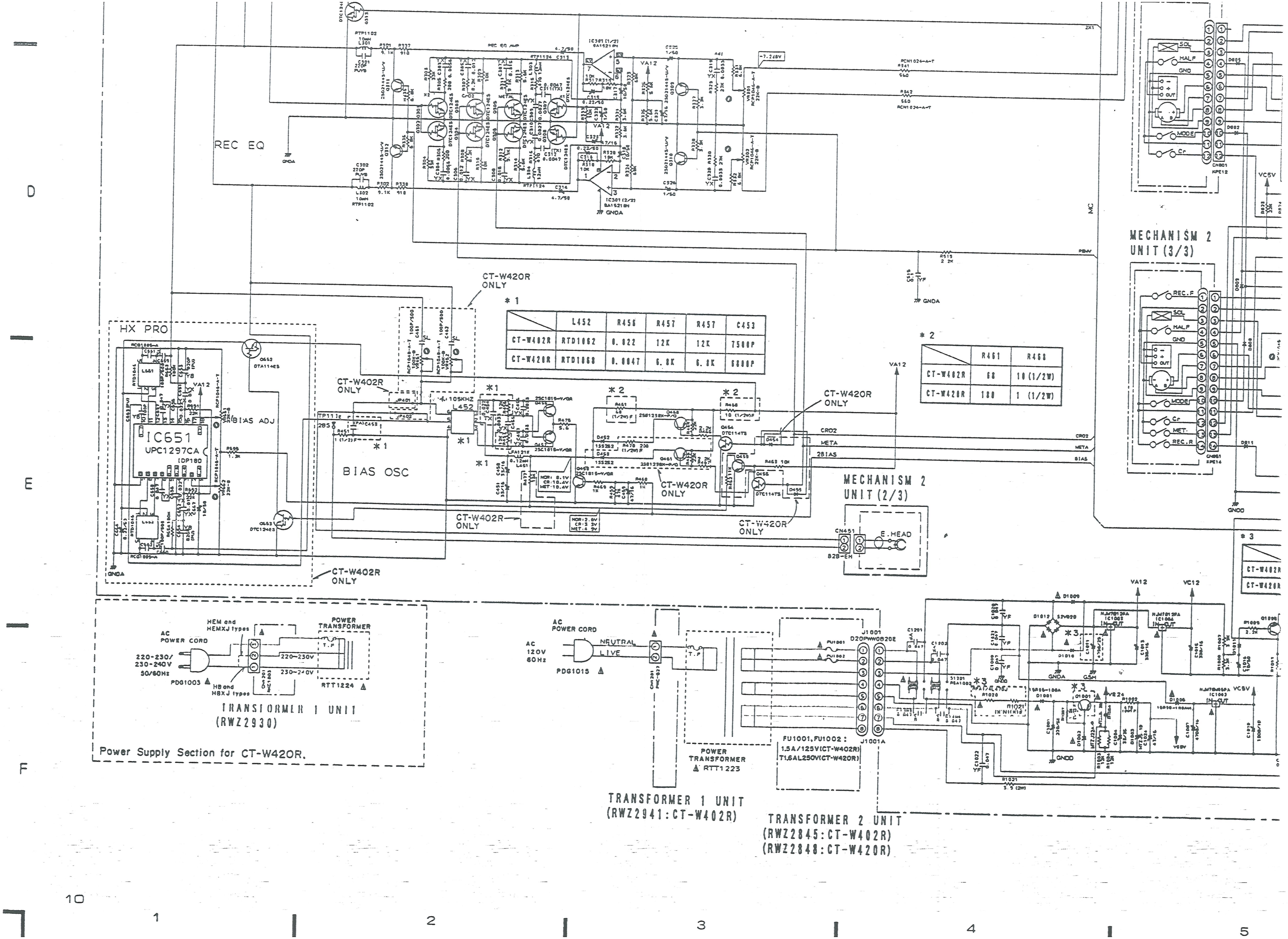
S1201 : POWER

DISPLAY UNIT

S1501 : 1-FF
S1502 : 1-REW
S1503 : 1-REV
S1504 : 1-FWD
S1506 : 1-STOP
S1509 : 2-FF
S1510 : 2-REW
S1511 : 2-RVV
S1512 : 2-FWD
S1513 : 2-MUTE
S1514 : 2-STOP
S1515 : 2-REC
S1516 : 2-PAUSE
S1517 : RELAY/SKIP
S1518 : X1 COPY
S1519 : X2 COPY
S1520 : 1/F
S1521 : MODE 2-COUNTER
S1522 : RESET 1-COUNTER
S1523 : MODE 1-COUNTER
S1524 : RESET 2-COUNTER
S1525 : CD SYNC
S1528 : DOLBY B-OFF-C
S1529 : TIMER REC-OFF-PLAY
S1530 : ⇆ - ⊂ - ○

B

C

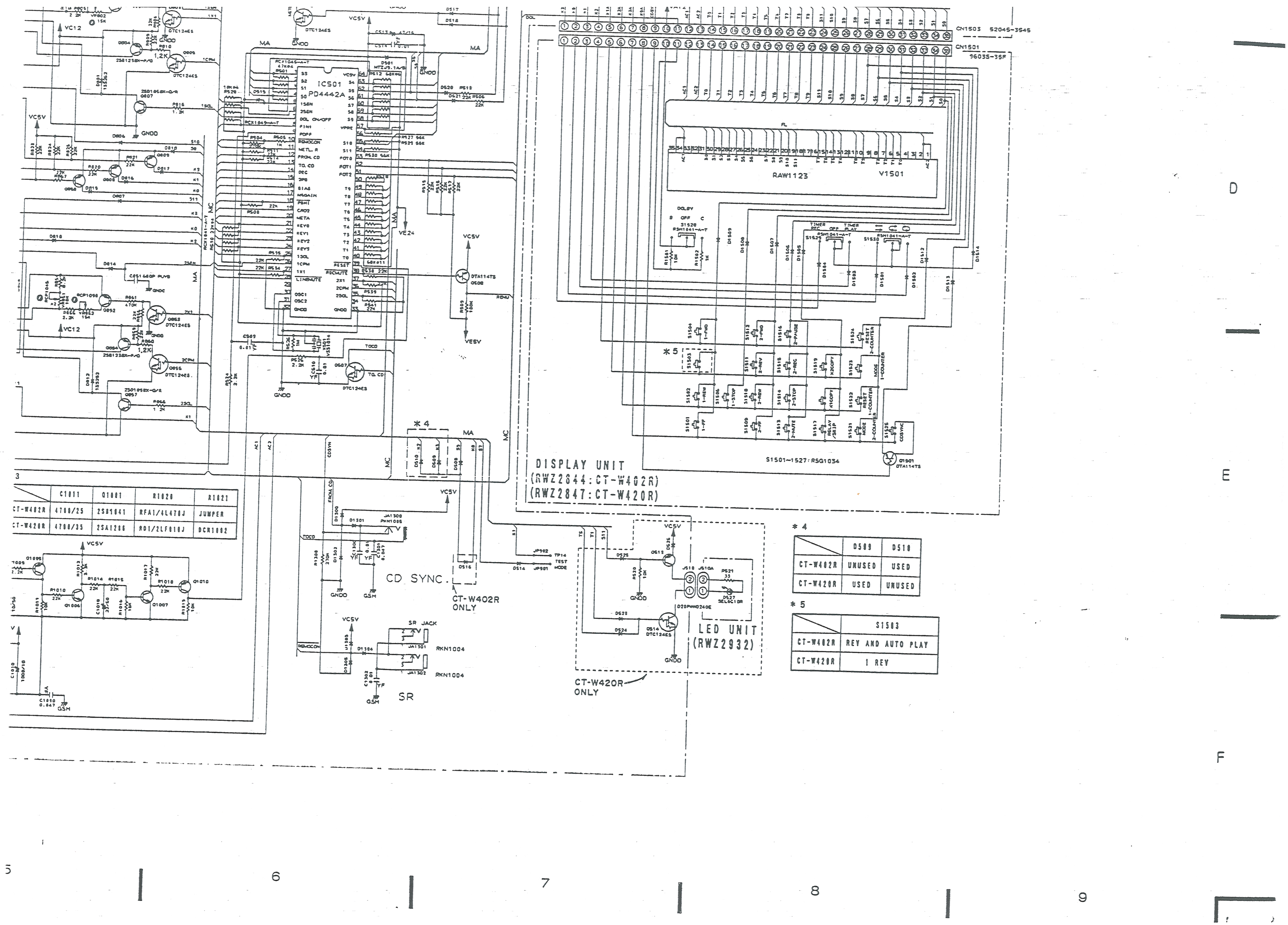

REC EQ
HX PRO
IC651
UPC1297CA
BIAS ADJ
BIAS OSC
L452
105KHZ
CT-W420R ONLY
CT-W402R ONLY
VA12
VC12
VC5V
GNDA
GNDD
CRO2
META
2BIAS
MECHANISM 2 UNIT (3/3)
MECHANISM 2 UNIT (2/3)
E.HEAD
CN451
SOL
HALF
GND
MODE
Cr
MET
REC.F
REC.R
IC301 (1/2) BA15218N
IC301 (2/2) BA15218N
-7.248V
Power Supply Section for CT-W420R.
AC POWER CORD
220-230/230-240V 50/60Hz
HEM and HEMXJ types
HB and HBXJ types
PDG1003
POWER TRANSFORMER
RTT1224
TRANSFORMER 1 UNIT (RWZ2930)
AC 120V 60Hz
NEUTRAL
LIVE
PDG1015
POWER TRANSFORMER RTT1223
TRANSFORMER 1 UNIT (RWZ2941:CT-W402R)
J1001 D20PWW0820E
J1001A
FU1001,FU1002 : 1.5A/125V(CT-W402R) T1.6AL250V(CT-W420R)
TRANSFORMER 2 UNIT (RWZ2845:CT-W402R) (RWZ2848:CT-W420R)
D
E
F
1
2
3
4
5

*1

	L452	R456	R457	R457	C453
CT-W402R	RTD1062	0.022	12K	12K	7500P
CT-W420R	RTD1068	0.0047	6.8K	6.8K	6800P

*2

	R461	R468
CT-W402R	68	10 (1/2W)
CT-W420R	180	1 (1/2W)


IC501
PD4442A
DTA114TS
Q508
VC5V
VE5V
VE24
VC12
GNDD
GSM
MA
MC
CN1503 52045-3545
CN1501 9603S-35F
FL
RAW1123
V1501
DOLBY
TIMER
S1501~1527:RSG1034
Q1501
DTA114TS
DISPLAY UNIT
(RWZ2844:CT-W402R)
(RWZ2847:CT-W420R)
CD SYNC.
CT-W402R
ONLY
JA1300
PKN1085
SR JACK
JA1301
JA1302
RKN1004
SR
LED UNIT
(RWZ2932)
CT-W420R
ONLY
JP902
TP14
TEST
JP901
MODE
D527
SEL4C10R
D520 PWW0240E
*4
*5
D
E
F
5
6
7
8
9

3

	C1011	Q1001	R1020	R1021
CT-W402R	4700/25	2SB1041	RFA1/4L470J	JUMPER
CT-W420R	4700/35	2SA1286	RD1/2LF010J	DCN1002

*4

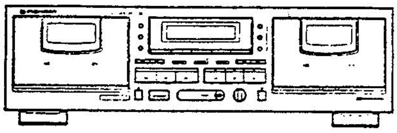
	D509	D510
CT-W402R	UNUSED	USED
CT-W420R	USED	UNUSED

*5

	S1503
CT-W402R	REV AND AUTO PLAY
CT-W420R	1 REV

Service Manual

PIONEER
The Art of Entertainment



ORDER NO.
ARP2696

STEREO DOUBLE CASSETTE DECK

CT-W502R

CT-W502R HAS THE FOLLOWING:

Type	Power Requirement	Remarks
KUXJ	AC120V only	
KU	AC120V only	
KCXJ	AC120V only	
SD	AC110V, 120 – 127V, 220V, 240V (Switchable)	
SL	AC110V, 120 – 127V, 220V, 240V (Switchable)	

- **This manual is applicable to CT-W502R/KUXJ, KU, KCXJ, SD and SL.**
- **For KU, KCXJ, SD and SL types, refer to page 28.**

CONTENTS

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PIONEER ELECTRONIC CORPORATION

1. SAFETY INFORMATION

This service manual is intended for qualified service technicians; it is not meant for the casual do-it-yourselfer. Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual.
Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty. If you are not qualified to perform the repair of this product properly and safely, you should not risk trying to do so and refer the repair to a qualified service technician.

WARNING
Lead in solder used in this product is listed by the California Health and Welfare agency as a known reproductive toxicant which may cause birth defects or other reproductive harm (California Health & Safety Code, Section 25249.5).
When servicing or handling circuit boards and other components which contain lead in solder, avoid unprotected skin contact with the solder. Also, when soldering do not inhale any smoke or fumes produced.

NOTICE
(FOR CANADIAN MODEL ONLY)
Fuse symbols ▭ (fast operating fuse) and/or ▭ (slow operating fuse) on PCB indicate that replacement parts must be of identical designation.

REMARQUE
(POUR MODELE CANADIEN SEULEMENT)
Les symboles de fusible ▭ (fusible de type rapide) et/ou ▭ (fusible de type lent) sur CCI indiquent que les pièces de remplacement doivent avoir la même désignation.

(FOR USA MODEL ONLY)

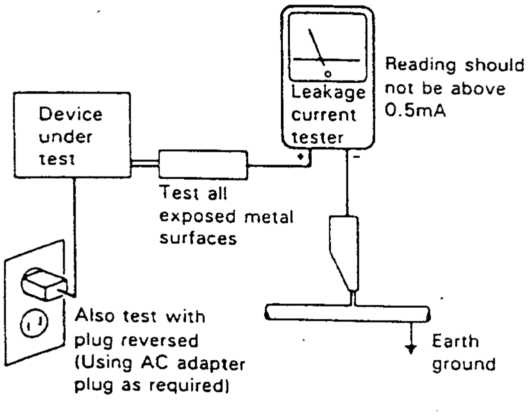
1. SAFETY PRECAUTIONS

The following check should be performed for the continued protection of the customer and service technician.

LEAKAGE CURRENT CHECK

Measure leakage current to a known earth ground (water pipe, conduit, etc.) by connecting a leakage current tester such as Simpson Model 229-2 or equivalent between the earth ground and all exposed metal parts of the appliance (input/output terminals, screwheads, metal overlays, control shaft, etc.). Plug the AC line cord of the appliance directly into a 120V AC 60Hz outlet and turn the AC power switch on. Any current measured must not exceed 0.5mA.

ANY MEASUREMENTS NOT WITHIN THE LIMITS OUTLINED ABOVE ARE INDICATIVE OF A POTENTIAL SHOCK HAZARD AND MUST BE CORRECTED BEFORE RETURNING THE APPLIANCE TO THE CUSTOMER.


Leakage current tester
Reading should not be above 0.5mA
Device under test
Test all exposed metal surfaces
Also test with plug reversed (Using AC adapter plug as required)
Earth ground

AC Leakage Test

2. PRODUCT SAFETY NOTICE

Many electrical and mechanical parts in the appliance have special safety related characteristics. These are often not evident from visual inspection nor the protection afforded by them necessarily can be obtained by using replacement components rated for voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this Service Manual.

Electrical components having such features are identified by marking with a ⚠ on the schematics and on the parts list in this Service Manual.
The use of a substitute replacement component which dose not have the same safety characteristics as the PIONEER recommended replacement one, shown in the parts list in this Service Manual, may create shock, fire, or other hazards.

Product Safety is continuously under review and new instructions are issued from time to time. For the latest information, always consult the current PIONEER Service Manual. A subscription to, or additional copies of, PIONEER Service Manual may be obtained at a nominal charge from PIONEER.

2. EXPLODED VIEWS, PACKING AND PARTS LIST

2.1 EXTERIOR AND PACKING

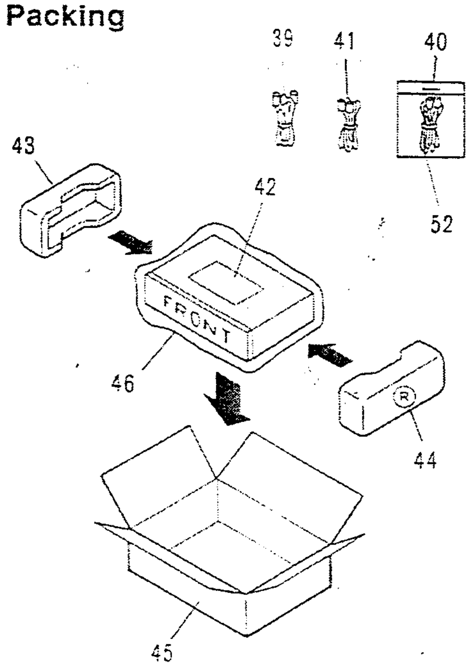
NOTES:

- Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.
- The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- Parts marked by "⊙" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.

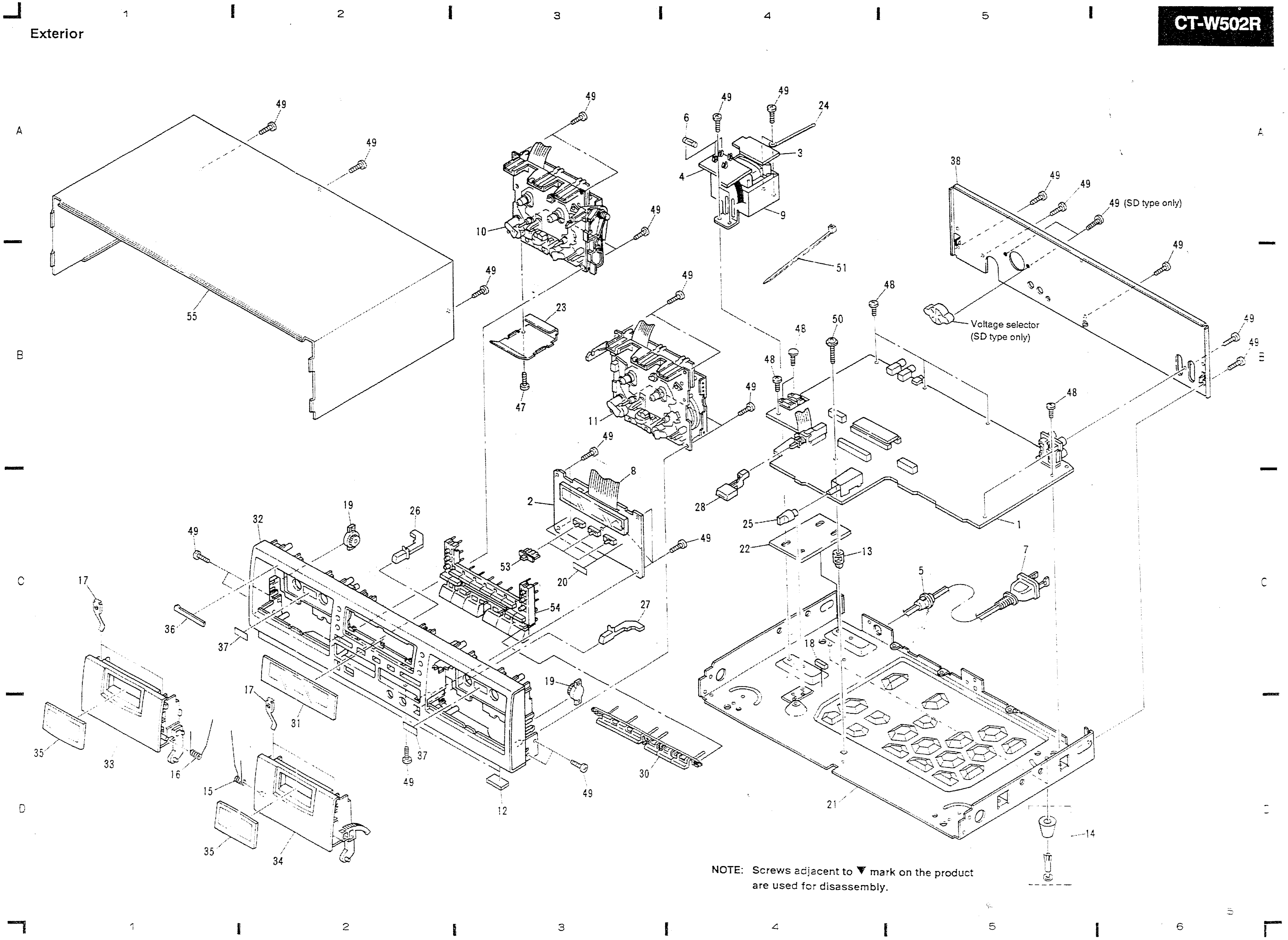
Parts List

Mark	No.	Description	Part No.
	1	Main unit	RWZ2823
	2	Display unit	RWZ2825
NSP	3	Transformer 1 unit	RWZ2941
NSP	4	Transformer 2 unit	RWZ2827
⚠	5	Strain relief	CM – 22C
⚠	6	FU1001, FU1002 Fuse (UL1.5A)	DEK1014
⚠	7	AC power cord	PDG1015
	8	Lead card 35P	RDD1285
⚠	9	Power transformer	RTT1223
⊙	10	Mechanism unit (1, DECK I)	RYM1198
⊙	11	Mechanism unit (2, DECK II)	RYM1199
	12	Rubber sheet	AEB1111
NSP	13	PCB spacer	PNY – 404
	14	Foot assembly	PXA1201
	15	Door spring L	RBH1304
	16	Door spring R	RBH1305
	17	Half pressure spring	RBK1004
NSP	18	FL spacer	REB1171
	19	Damper assembly	REC1005
	20	Knob spacer	REC1195
NSP	21	Main chassis	RNB1091
NSP	22	Transformer shield plate	RNE1451
NSP	23	Mechanism shield plate	RNE1519
	24	Cord clamper	RNH – 184
	25	Balance knob	RAC1705
	26	Eject knob L	RAC1778
	27	Eject knob R	RAC1779
	28	Power knob	RAC1780
	29	......	
	30	REC knob B	RAC1788
	31	FL lens	RAH2179
	32	Front panel	RAH2181
	33	Door pocket L	RAH2183
	34	Door pocket R	RAH2184
	35	Door lens	RAH2187
	36	Name plate	RAM1007
	37	Remain display paper	REE – 113
NSP	38	Rear panel	RNA1702
	39	Connection cord with mini plug (For SR terminal)	PDE – 319
	40	Connection cord assembly	RDE1002
	41	Control cord (For CD DECK SYNCHRO)	RDE1030
	42	Operating instructions (English)	RRB1127
	43	Pad	RHA1115
	44	Pad R	RHA1116
	45	Packing case	RHG1480
	46	Sheet	Z23 – 007
	47	Screw	BBZ20P040FMC
	48	Screw	BBZ30P060FMC
	49	Screw	BBZ30P080FZK
	50	Screw	IBZ30P150FCU
	51	Binder	REC – 371
	52	Connection cord with plug	RDE – 010
	53	Slide knob	REA1078
	54	Control knob	RAC1783
	55	Bonnet	REA1077

Packing



Exterior


1
2
3
4
5
6
A
B
C
D
55
49
10
23
47
11
8
2
6
24
3
4
9
51
38
49 (SD type only)
Voltage selector
(SD type only)
48
50
1
28
25
22
13
7
5
53
20
54
19
26
32
17
36
37
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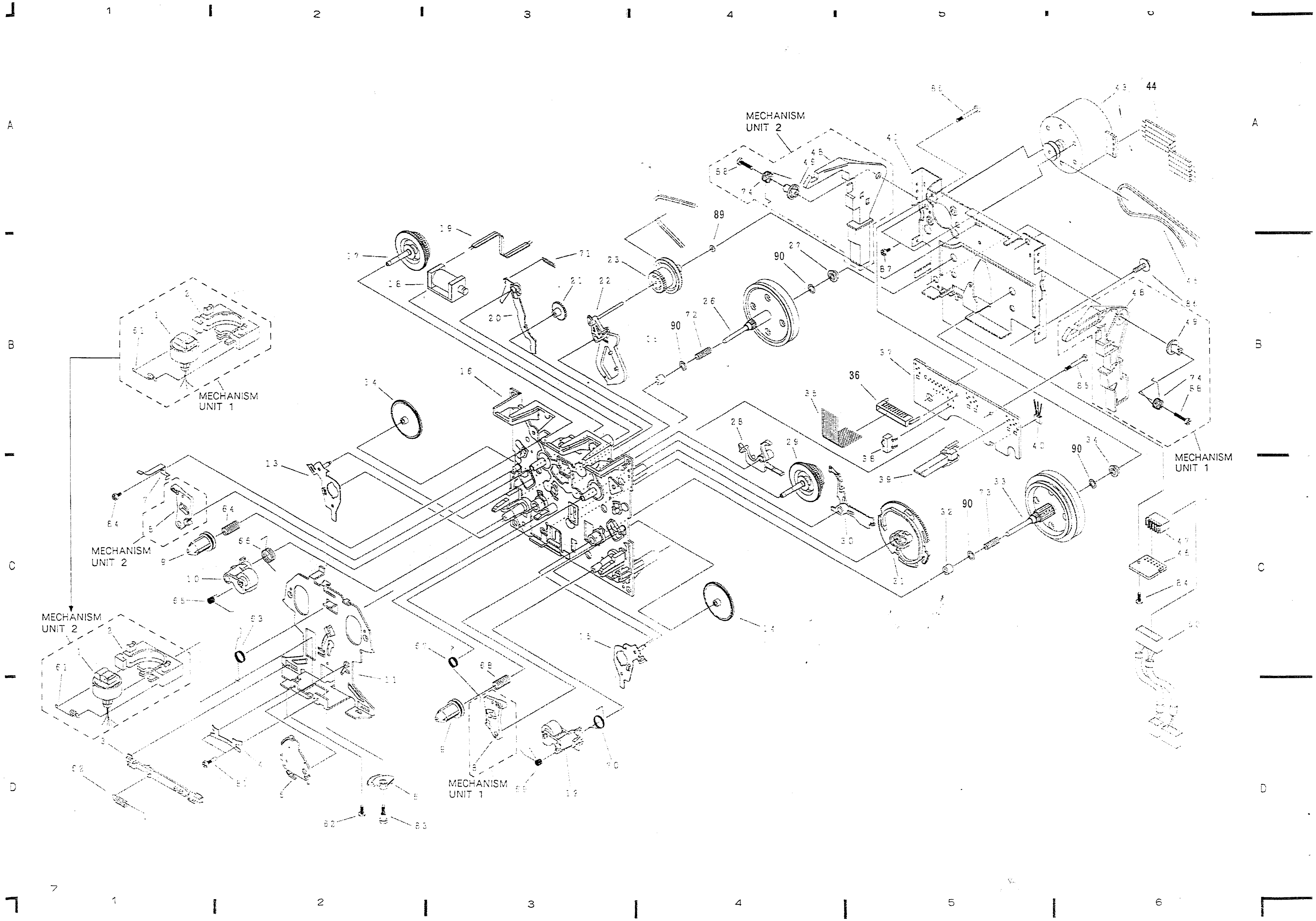
34
12
30
18
21
14

NOTE: Screws adjacent to ▼ mark on the product are used for disassembly.

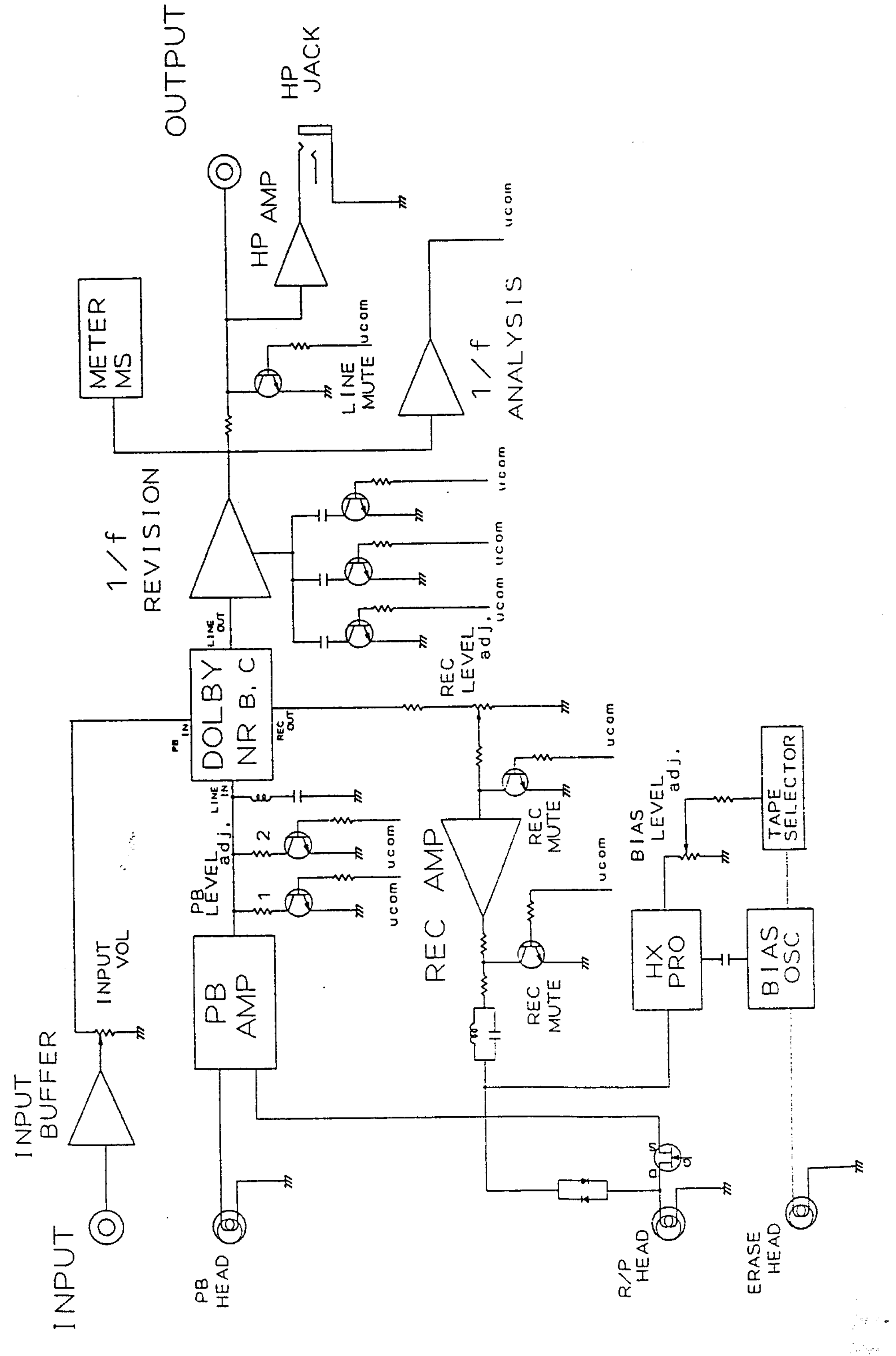
2.2 MECHANISM UNIT 1(RYM1198) MECHANISM UNIT 2(RYM1199)

Parts List

Mark	No.	Description	Part No.
	1	ASS'Y HOLDER HEAD (Mechanism unit 2)	RXA1477
		ASS'Y HOLDER HEAD (Mechanism unit 1)	RXA1500
	2	FLAME HEAD	RNK1715
	3	LEVER HEAD	RNK1716
	4	SPRING AZIMUTH	RBK1006
	5	ASS'Y ARM ASSIST	RXA1401
	6	GEAR ARM HEAD	RNK1717
	7	SPRING CASSETTE	RBK1039
	8	EJECT LOCK	RNK1718
	9	CAP REEL	RNK1719
	10	ASS'Y PINCH ARM L	RXA1403
	11	CHASSIS HEAD	RNE1437
	12	ASS'Y PINCH ARM R	RXA1404
	13	ARM PLAY L	RNK1866
	14	GEAR PLAY	RNK1867
	15	ARM PLAY R	RNK1868
	16	CHASSIS OS.	RXA1411
	17	ASS'Y SUB REEL L	RXA1407
⚠	18	SOLENOID	RXP1020
	19	WIRE	RDC1006
	20	ARM RVS	RNK1721
	21	GEAR FF	RNK1723
	22	ASS'Y ARM FR	RXA1412
	23	ASS'Y PULLEY FR	RXA1413
	24	BELT FR	REB1158
	25	METAL	RNG1048
	26	ASS'Y FLYWHEEL L	RXA1423
	27	METAL	RNG1005
	28	ARM BRAKE	RNK1724
	29	ASS'Y SUB REEL R	RXA1408
	30	ARM TRIGGER	RNK1722
	31	GEAR CAM	RNK1725
	32	METAL	RNG1049
	33	ASS'Y FLYWHEEL R	RXA1424
	34	METAL	RNG1004
	35	WIRE (14P) (Mechanism unit 2)	RDD1217
		WIRE (12P) (Mechanism unit 1)	RDD1249
NSP	36	HOLDER WIRE	RNK1683
	37	P.C. BOARD	RNP1347
	38	SWITCH MODE	RSN1022
	39	SWITCH (LEAF)	RSN1019
	40	HALL IC.	DN6851A
	41	BRACKET FW	RNE1438
	42	······	
	43	ASS'Y MOTOR	RXM1060
NSP	44	WIRE	RDD1012
	45	BELT MAIN	REB1159
	46	P.C. BOARD	RNP1348
	47	HOUSING (Mechanism unit 2)	RKP1397
		HOUSING (Mechanism unit 1)	RKP1396
	48	EJECT LEVER L (Mechanism unit 2)	RNK1831
		EJECT LEVER R (Mechanism unit 1)	RNK1811
	49	COLLAR	RNK1704
	50	WIRE HEAD (Mechanism unit 2)	RKP1399
		WIRE HEAD (Mechanism unit 1)	RKP1398
	61	SPRING	RBH1282
	62	SPRING	RBH1283
	63	SPRING	RBH1284
	64	SPRING	RBH1286
	65	SPRING	RBH1288
	66	SPRING	RBH1291
	67	SPRING	RBH1285
	68	SPRING	RBH1287
	69	SPRING	RBH1289
	70	SPRING	RBH1290
	71	SPRING	RBH1292
	72	SPRING	RBH1061
	73	SPRING	RBH1325
	74	SPRING (L) (Mechanism unit 2)	RBH1319
		SPRING (R) (Mechanism unit 1)	RBH1320
	81	SCREW	RBA1023
	82	SCREW	RBA1027
	83	SCREW	RBA1030
	84	SCREW	PCZ20P040FMC
	85	SCREW	RBA1093
	86	SCREW	RBA1094
	87	SCREW	RBA1066
	88	SCREW	RBA1095
	89	WASHER	RBF1046
	90	WASHER	WA26D047D013


MECHANISM UNIT 1
MECHANISM UNIT 2
A
B
C
D

3. BLOCK DIAGRAM


INPUT
INPUT BUFFER
INPUT VOL
PB HEAD
PB AMP
PB LEVEL adj.
1
2
ucom
LINE IN
PB IN
DOLBY NR B, C
REC OUT
LINE OUT
1/f REVISION
METER MS
OUTPUT
HP AMP
HP JACK
LINE MUTE
1/f ANALYSIS
REC LEVEL adj.
REC LEVEL
REC AMP
REC MUTE
R/P HEAD
ERASE HEAD
HX PRO
BIAS OSC
BIAS LEVEL adj.
TAPE SELECTOR

4. PCB PARTS LIST

NOTES:

- Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.
- The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- Parts marked by "⊙" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.
- When ordering resistors, first convert resistance values into code form as shown in the following examples.

Ex.1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J=5%, and K=10%).

560 Ω → 56 × 10^1 → 561 ································ RD1/8PM$\boxed{5}\boxed{6}\boxed{1}$J
47k Ω → 47 × 10^3 → 473 ································ RD1/4PS$\boxed{4}\boxed{7}\boxed{3}$J
0.5 Ω → 0R5 ································ RN2H$\boxed{0}\boxed{R}\boxed{5}$K
1 Ω → 010 ································ RS1P$\boxed{0}\boxed{1}\boxed{0}$K

Ex.2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62k Ω → 562 × 10^1 → 5621 ································ RN1/4PC$\boxed{5}\boxed{6}\boxed{2}\boxed{1}$F

LIST OF ASSEMBLIES

Mark	No.	Description	Part No.
NSP	MOTHER UNIT		RWM1581
	├ MAIN UNIT		RWZ2823
	├ DISPLAY UNIT		RWZ2825
NSP	├ TRANSFORMER 1 UNIT		RWZ2941
NSP	└ TRANSFORMER 2 UNIT		RWZ2827

MAIN UNIT

SEMICONDUCTORS

Mark	No.	Description	Part No.
	IC201, IC220, IC701, IC902		BA15218
	IC301, IC1601		BA15218N
	IC101		CXA1115BP
	IC251		CXA1330S
⚠	IC1003, IC1004		NJM7812FA
⚠	IC1002		NJM78M05FA
	IC501		PD4442A
	IC1701		TC4050BP
	IC651		UPC1297CA
	IC223		XRA10393
	IC903		XRA10393N
	Q802, Q808, Q809, Q852, Q858, Q1005, Q1010		2SA1309A
⚠	Q1001		2SB1041
	Q460, Q804, Q854		2SB1238X
	Q456-Q458		2SC1815
	Q163, Q164, Q459, Q1006, Q1007		2SC3311A
	Q807, Q857		2SD1858X
	Q309-Q312, Q701, Q702		2SD2144S
	Q161, Q162		2SK373
	Q165, Q652		DTA114ES
	Q508, Q751		DTA114TS
	Q108, Q454, Q455, Q904		DTC114TS
	Q101-Q106, Q109, Q167, Q201-Q206, Q256, Q301-Q308, Q313, Q503-Q507, Q511, Q512, Q653, Q803, Q805, Q853, Q855, Q903		DTC124ES
⚠	D1001		1SR35-100A
⚠	D1006		1SR35-100AVL
	D452, D801, D812		1SS252
	D161-D166, D221, D251, D454, D455, D503-D506, D508, D509, D514, D515, D517, D518, D520, D521, D752, D802, D805-D811, D813-D818, D901-D903, D1011, D1300-D1305, D1701-D1705		1SS254
⚠	D1009, D1010,		1SS254
⚠	D1002		MTZJ22A
	D1004		MTZJ3. 3B
	D753		MTZJ3. 9B
	D1003		MTZJ5. 1B
	D501		MTZJ9. 1A
⚠	D1012		S2VB20

SWITCHES

Mark	No.	Description	Part No.
⚠	S1201		RSA1002

COILS AND FILTERS

Mark	No.	Description	Part No.
	L451		LFA121K
	L651, L652(L=4. 6MHz, Q=25, F=105KHz)		RTD1046
	L452(F=105K)		RTD1062
	L101, L102(L=562J)		RTF1099
	L301, L302(L=103J)		RTF1102
	L303, L304(L=123J)		RTF1124
	F251, F252		RTF1208

CAPACITORS

Mark	No.	Description	Part No.
	C659, C660		CCCSL101K500
	C161, C162		CCPUSL100J50
	C107-C110		CEANL100M16
	C111, C112		CEANL101M10
	C211-C213, C251-C254, C322, C325, C326, C703, C704		CEAS010M50
	C209, C210, C269, C281-C284, C317, C318, C667, C707, C708, C1016		CEAS100M50
	C291, C1603, C1604		CEAS101M16
	C1010		CEAS102M10
	C1018		CEAS220M50
	C1001		CEAS221M50
	C285, C286, C451, C458		CEAS330M16
	C914, C1004		CEAS330M35
	C913, C1013, C1015, C1605		CEAS331M16
	C915, C916		CEAS3R3M50
	C141, C142, C201, C202, C214, C321, C323, C459, C513, C705, C713, C1024		CEAS470M16
	C1007		CEAS472M16
	C1011		CEAS472M25
	C117, C118, C215, C216, C313, C314		CEAS4R7M50
	C265, C266, C275, C315, C316, C664, C917, C918, C1601, C1602		CEASR22M50
	C267, C268, C273, C274		CEASR33M50
	C233		CEASR47M50
	C293, C294		CFTXA103J50
	C203, C204		CFTXA152J50
	C261-C264		CFTXA222J50
	C191, C192, C454		CFTXA223J50
	C205, C206		CFTXA272J50
	C311, C312		CFTXA472J50
	C207, C208		CFTXA562J50
	C113, C114		CFTXA822J50
	C515		CGCYF104Z25
	C651, C652		CGCYX103K25
	C305, C306		CGCYX123K25
	C307, C308		CGCYX153K25
	C655, C656		CGCYX223K25
	C309, C310		CGCYX272K25
	C225, C227, C319, C320, C455-C457		CGCYX332K25
	C236, C657, C658		CGCYX473K25
	C303, C304		CGCYX562K25
	C750, C751		CGCYX822K25
	C509, C510, C514, C1300, C1302		CKCYF103Z50
	C126, C139, C706, C709, C756, C911, C921, C1008, C1020-C1022, C1030, C1201-C1204, C1301, C1701, C2020		CKCYF473Z50
	C135-C138, C221, C663, C701, C702, C711, C712, C723, C724		CKPUYB101K50
	C105, C106		CKPUYB102K50
	C301, C302		CKPUYB221K50
	C103, C104, C217, C218		CKPUYB271K50
	C123, C124		CKPUYB391K50
	C121, C122		CKPUYB471K50
	C101, C102, C133, C134, C801, C851		CKPUYB681K50
	C653, C654, C923, C924		CKPUYB821K50
	C453		CQPA752J100
	C661, C662(C=430P, V(DC)= 500)		RCG1005

RESISTORS

Mark	No.	Description	Part No.
	R518(68k)		RA11T683J
	R528(10k)		RA4S103J
	R510(22k)		RA4S223J
	R501(47k)		RA4S473J
	R1701(22k)		RA5T223J
	R512(68k)		RA6T683J
	R341, R342(560Ω)		RCN1024
	R1702(11K/22K)		RCX1020
	R451		RD1/2LF010J
	R468		RD1/2LF100J
	R461		RD1/2LF680J
	R1001		RD1/2PMF152J
⚠	R1020(47Ω)		RFA1/4L470J
	R1609(220Ω)		RS2LMF221J
	R1002(470Ω)		RS2LMF471J
	VR851(10k)		RCP1045
	VR101-VR104, VR301, VR302, VR651, VR652(22k)		RCP1046
	VR802, VR852(15k)		RCP1090
	VR2002(5kA)		RCV1089
	OTHER RESISTORS		RD1/6PM□□□J

OTHERS

Mark	No.	Description	Part No.
	CN1503	CONNECTOR(35P)	52045-3545
	CN801	CONNECTOR(12P)	KPE12
	CN851	CONNECTOR(14P)	KPE14
	JA1300	MAIN JACK	PKN1005
	JA701	PIN JACK(4P)	RKB-020
	JA2003	HEADPHONE JACK	RKN1002
	JA1301, JA1302	REMOTE CONTROL JACK	RKN1004
	X501	CERAMIC RESONATOR(4. 19MHZ)	VSS1014

DISPLAY UNIT

SEMICONDUCTORS

Mark	No.	Description	Part No.
	Q1501		DTA114TS
	D1501-D1509, D1512-D1514		1SS254

SWITCHES

Mark	No.	Description	Part No.
	S1501-S1504, S1506, S1509-S1525		RSG1034
	S1528-S1530		RSH1041

RESISTORS

Mark	No.	Description	Part No.
	ALL RESISTORS		RD1/6PM□□□J

OTHERS

Mark	No.	Description	Part No.
	CN1501	CONNECTOR(35P)	9603S-35F
	V1501	FL INDICATOR TUBE	RAW1123

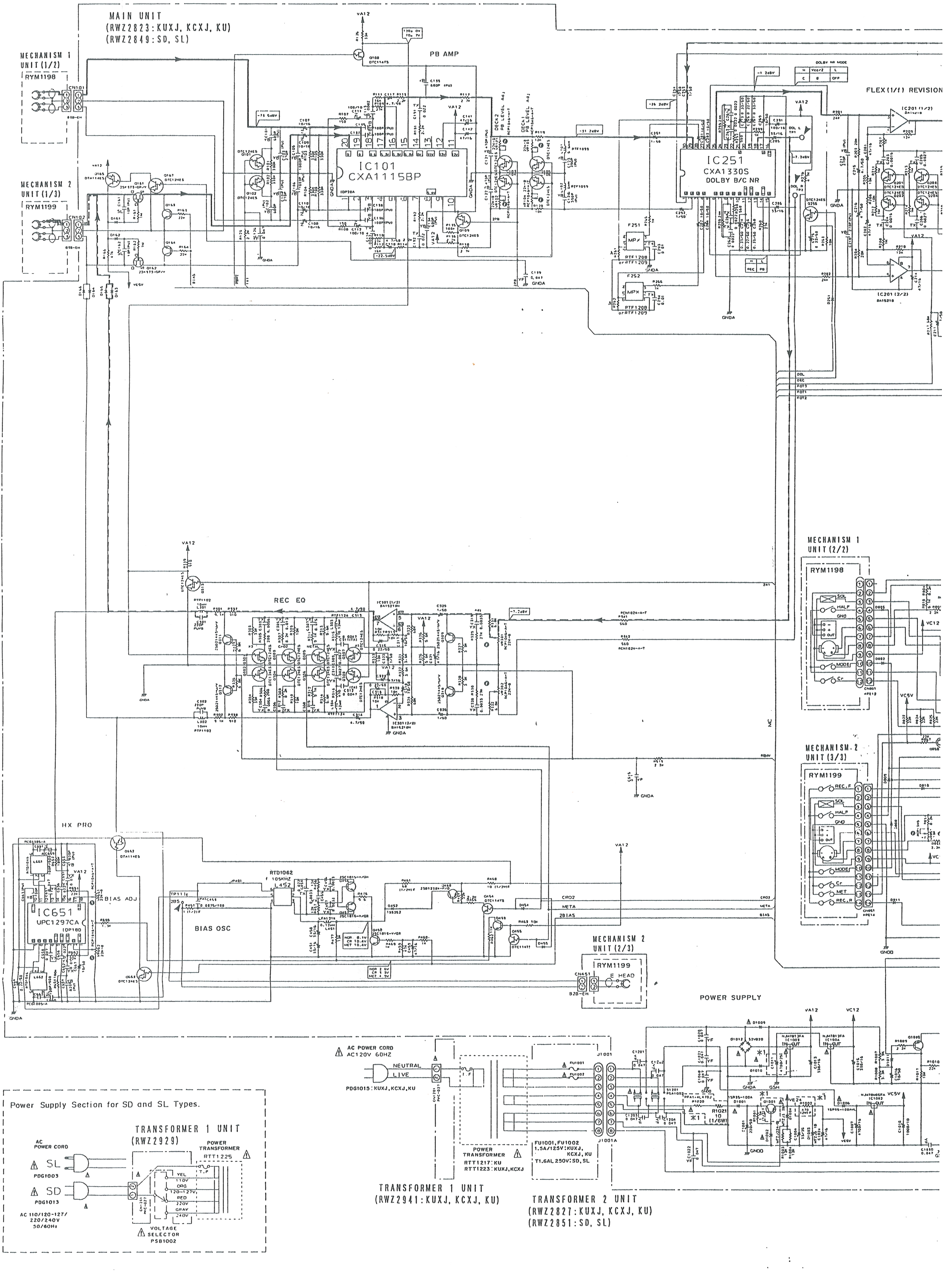
TRANSFORMER 1 UNIT

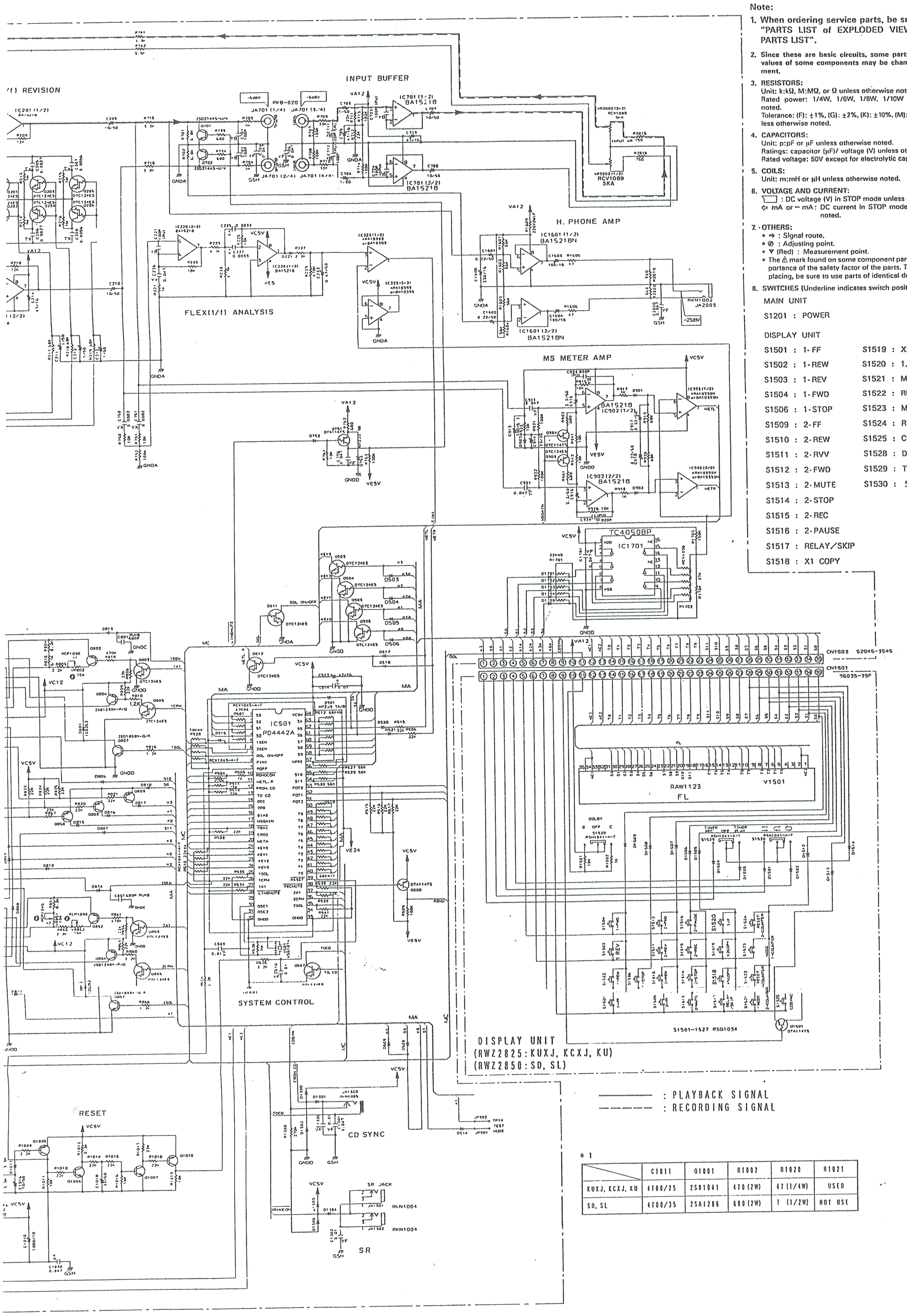
TRANSFORMER 1 unit has no service part.

TRANSFORMER 2 UNIT

TRANSFORMER 2 unit has no service part.

5. SCHEMATIC DIAGRAM


MAIN UNIT
(RWZ2823:KUXJ, KCXJ, KU)
(RWZ2849:SD, SL)
MECHANISM 1 UNIT (1/2)
RYM1198
CN101
MECHANISM 2 UNIT (1/3)
RYM1199
CN102
PB AMP
IC101
CXA1115BP
DECK2 PB LEVEL Adj
DECK1 PB LEVEL Adj
IC251
CXA1330S
DOLBY B/C NR
DOLBY NR MODE
FLEX (1/1) REVISION
IC201 (1/2)
BA15218
IC201 (2/2)
BA15218
F251
MPX
PTF1208
F252
PTF1200
GNDA
REC EQ
IC301 (1/2)
BA15218N
IC301 (2/2)
BA15218N
MECHANISM 1 UNIT (2/2)
RYM1198
SOL
HALF
GND
MODE
Cr
CN801
MECHANISM 2 UNIT (3/3)
RYM1199
REC.F
MET
REC.R
CN851
HX PRO
IC651
UPC1297CA
BIAS ADJ
RTD1062
105KHZ
L452
BIAS OSC
CrO2
META
2BIAS
MECHANISM 2 UNIT (2/3)
RYM1199
E HEAD
CN451
POWER SUPPLY
VA12
VC12
VC5V
AC POWER CORD
AC120V 60HZ
NEUTRAL
LIVE
PDG1015:KUXJ,KCXJ,KU
J1001
J1001A
POWER TRANSFORMER
RTT1217:KU
RTT1223:KUXJ,KCXJ
FU1001,FU1002
1.5A/125V:KUXJ, KCXJ,KU
T1.6AL 250V:SD,SL
TRANSFORMER 1 UNIT
(RWZ2941:KUXJ, KCXJ, KU)
TRANSFORMER 2 UNIT
(RWZ2827:KUXJ, KCXJ, KU)
(RWZ2851:SD, SL)
Power Supply Section for SD and SL Types.
TRANSFORMER 1 UNIT
(RWZ2929)
AC POWER CORD
SL
PDG1003
SD
PDG1013
AC 110/120-127/220/240V
50/60Hz
POWER TRANSFORMER
RTT1225
YEL
110V
ORG
120-127V
RED
220V
GRAY
240V
VOLTAGE SELECTOR
PSB1002


6
7
8
9
B
C
D
E
F
5
(f) REVISION
INPUT BUFFER
IC701 (1/2) BA15218
IC701 (2/2) BA15218
JA701
H. PHONE AMP
IC1601 (1/2) BA15218N
IC1601 (2/2) BA15218N
FLEX(1/f) ANALYSIS
MS METER AMP
IC902 (1/2) BA15218
IC902 (2/2) BA15218
TC4050BP
IC1701
IC501
PD4442A
SYSTEM CONTROL
CN1503 52045-3545
CN1501 96035-35F
RAW1123
V1501
FL
S1501~1527 RSG1034
DISPLAY UNIT
(RWZ2825:KUXJ, KCXJ, KU)
(RWZ2850:SD, SL)
RESET
CD SYNC
SR JACK
SR
RKN1004
RCV1089
5KA
VC5V
VA12
GNDA
GNDD
GSH

Note: (Type 6)

1. When ordering service parts, be sure to refer to "PARTS LIST of EXPLODED VIEWS" or "PCB PARTS LIST".

2. Since these are basic circuits, some parts of them or the values of some components may be changed for improvement.

3. RESISTORS:
Unit: k:kΩ, M:MΩ, or Ω unless otherwise noted.
Rated power: 1/4W, 1/6W, 1/8W, 1/10W unless otherwise noted.
Tolerance: (F): ±1%, (G): ±2%, (K): ±10%, (M): ±20% or ±5% unless otherwise noted.

4. CAPACITORS:
Unit: p:pF or μF unless otherwise noted.
Ratings: capacitor (μF)/ voltage (V) unless otherwise noted.
Rated voltage: 50V except for electrolytic capacitors.

5. COILS:
Unit: m:mH or μH unless otherwise noted.

6. VOLTAGE AND CURRENT:
▭ : DC voltage (V) in STOP mode unless otherwise noted.
⇦ mA or ← mA : DC current in STOP mode unless otherwise noted.

7. OTHERS:
- ➡ : Signal route.
- ⊘ : Adjusting point.
- ▼ (Red) : Measurement point.
- The ⚠ mark found on some component parts indicates the importance of the safety factor of the parts. Therefore, when replacing, be sure to use parts of identical designation.

8. SWITCHES (Underline indicates switch position):

MAIN UNIT

S1201 : POWER

DISPLAY UNIT

S1501 : 1-FF
S1502 : 1-REW
S1503 : 1-REV
S1504 : 1-FWD
S1506 : 1-STOP
S1509 : 2-FF
S1510 : 2-REW
S1511 : 2-RVV
S1512 : 2-FWD
S1513 : 2-MUTE
S1514 : 2-STOP
S1515 : 2-REC
S1516 : 2-PAUSE
S1517 : RELAY/SKIP
S1518 : X1 COPY
S1519 : X2 COPY
S1520 : 1/F
S1521 : MODE 2-COUNTER
S1522 : RESET 1-COUNTER
S1523 : MODE 1-COUNTER
S1524 : RESET 2-COUNTER
S1525 : CD SYNC
S1528 : DOLBY B-OFF-C
S1529 : TIMER REC-OFF-PLAY
S1530 : ⇆ - ⊂ - ⊃

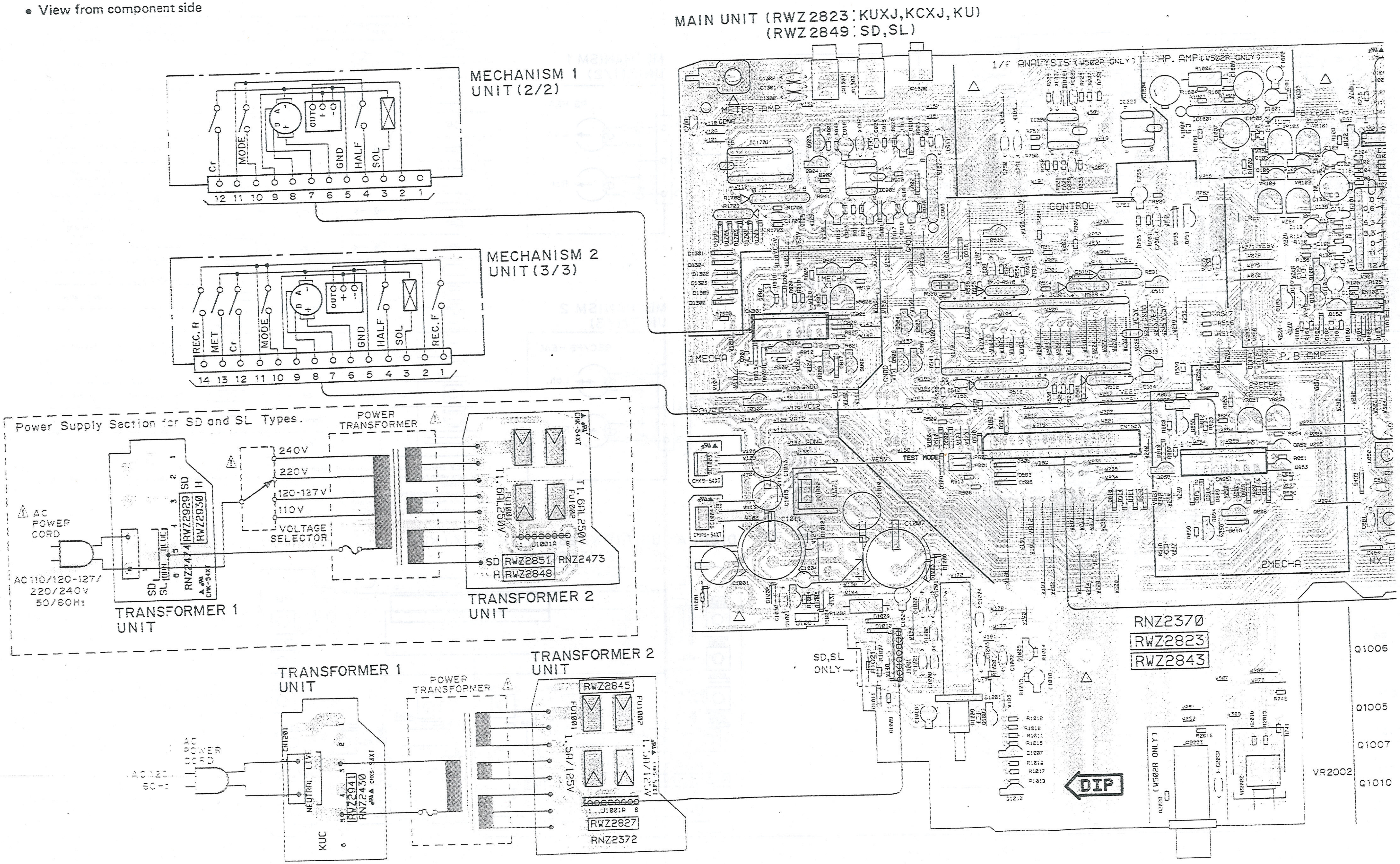
——— : PLAYBACK SIGNAL
– – – : RECORDING SIGNAL

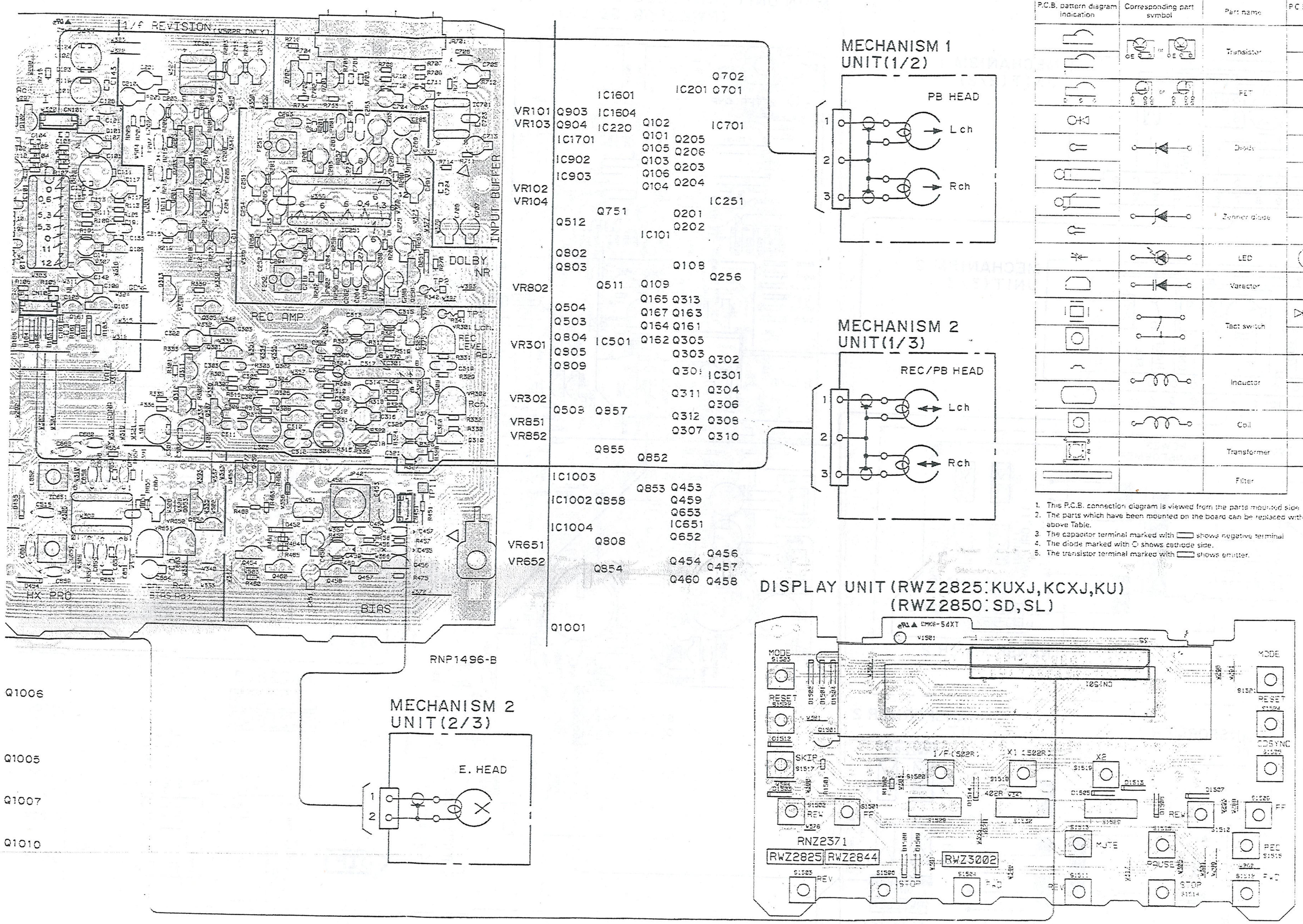
*1

	C1011	Q1001	R1002	R1020	R1021
KUXJ, KCXJ, KU	4700/25	2SB1041	470 (2W)	47 (1/4W)	USED
SD, SL	4700/35	2SA1286	680 (2W)	1 (1/2W)	NOT USE

6. PCB CONNECTION DIAGRAM

- View from component side


MAIN UNIT (RWZ2823 : KUXJ,KCXJ,KU)
(RWZ2849 : SD,SL)
MECHANISM 1 UNIT (2/2)
Cr
MODE
GND
HALF
SOL
12 11 10 9 8 7 6 5 4 3 2 1
MECHANISM 2 UNIT (3/3)
REC.R
MET
Cr
MODE
GND
HALF
SOL
REC.F
14 13 12 11 10 9 8 7 6 5 4 3 2 1
Power Supply Section for SD and SL Types.
AC POWER CORD
AC110/120-127/220/240V 50/60Hz
TRANSFORMER 1 UNIT
RWZ2929 SD
RWZ2930 H
RNZ2474
SD
SL
240V
220V
120-127V
110V
VOLTAGE SELECTOR
POWER TRANSFORMER
T1.6AL250V
FU1001
FU1002
J1001A
SD RWZ2851
H RWZ2848
RNZ2473
TRANSFORMER 2 UNIT
TRANSFORMER 1 UNIT
POWER TRANSFORMER
TRANSFORMER 2 UNIT
AC POWER CORD
AC120 60Hz
CN1201
NEUTRAL
LIVE
RWZ2941
RNZ2430
KUC
RWZ2845
FU1001
FU1002
1.5A/125V
J1001A
RWZ2827
RNZ2372
METER AMP
1/f ANALYSIS (W502R ONLY)
HP. AMP (W502R ONLY)
CONTROL
1MECHA
POWER
P.B AMP
2MECHA
TEST MODE
SD,SL ONLY
DIP
RNZ2370
RWZ2823
RWZ2843
Q1006
Q1005
Q1007
VR2002
Q1010
(W502R ONLY)


7
8
9
10
11
1/f REVISION (W502R ONLY)
INPUT BUFFER
DOLBY NR
REC AMP
REC LEVEL ADJ.
HX PRO
BIAS
RNP1496-B
VR101 Q903 IC1601
VR103 Q904 IC1604
IC220
IC1701
IC902
IC903
VR102
VR104
Q512
Q751
Q802
Q803
VR802
Q511
Q504
Q503
VR301 Q804 IC501
Q905
Q809
VR302
Q503 Q857
VR851
VR852
Q855
Q852
IC1003
IC1002 Q858
IC1004
Q808
VR651
VR652
Q854
Q1001
Q1006
Q1005
Q1007
Q1010
Q702
IC201 Q701
Q102
Q101 Q205
Q105 Q206
Q103 Q203
Q106
Q104 Q204
IC701
IC251
Q201
Q202
IC101
Q108
Q256
Q109
Q165 Q313
Q167 Q163
Q164 Q161
Q162 Q305
Q303
Q301 Q302
IC301
Q311 Q304
Q306
Q312 Q308
Q307 Q310
Q853 Q453
Q459
Q653
IC651
Q652
Q456
Q454 Q457
Q460 Q458
MECHANISM 1
UNIT(1/2)
PB HEAD
Lch
Rch
1
2
3
MECHANISM 2
UNIT(1/3)
REC/PB HEAD
Lch
Rch
1
2
3
MECHANISM 2
UNIT(2/3)
E. HEAD
1
2
DISPLAY UNIT (RWZ2825: KUXJ,KCXJ,KU)
(RWZ2850: SD,SL)
MODE
RESET
SKIP
1/F (522R)
X1 (522R)
X2
REW
FF
MUTE
PAUSE
REC
CDSYNC
STOP
F.D
REV
RNZ2371
RWZ2825
RWZ2844
RWZ3002
7
8
9
10
11
12
A
B
C
D

P.C.B. pattern diagram indication	Corresponding part symbol	Part name	P.C.B. pattern diagram indication	Corresponding part symbol	Part name
		Transistor			Ceramic capacitor
		FET			Mylar capacitor
		Diode			Styrol capacitor
					Electrolytic capacitor (Non polarized)
					Electrolytic capacitor (Noiseless)
		Zenner diode			Electrolytic capacitor (Polarized)
					Electrolytic capacitor (Polarized)
		LED			Power capacitor
		Varactor			Semi-fixed resistor
		Tact switch			Resistor array
					Resistor
		Inductor			
		Coil			Resonator
		Transformer			Thermistor
		Filter			

1. This P.C.B. connection diagram is viewed from the parts mounted side.
2. The parts which have been mounted on the board can be replaced with those shown with the corresponding wiring symbols listed in the above Table.
3. The capacitor terminal marked with ▭ shows negative terminal
4. The diode marked with ○ shows cathode side.
5. The transistor terminal marked with ▭ shows emitter.

7. ADJUSTMENTS

7.1 MECHANICAL ADJUSTMENT

7.1.1 Door Damping Check and Adjustment

Set the door spring of the DECK I side to position (A) as shown in Fig. 7-1 Then, erect the front panel assembly vertically.

Open the doors of DECK I and DECK II at the same time. At this point, confirm that the difference between the door completely opened and the other door is within 15mm. If this standard is not satisfied install the door spring of DECK I at another position and adjust as follows:

- When the door of DECK I opens later than that of DECK II : Change the door spring of DECK II from A to B.
- When the door of DECK I opens faster than that of DECK II : Change the door spring of DECK I from A to B.

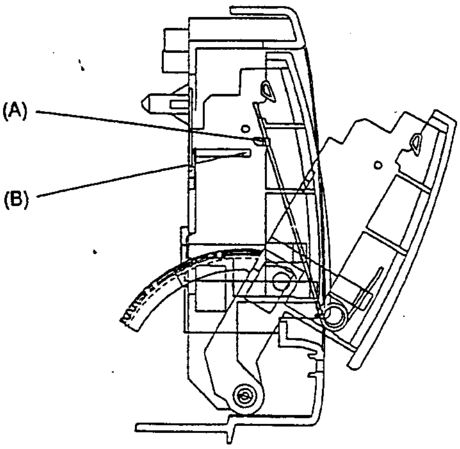


Fig. 7–1

7.1.2 Tape Speed

- Perform this adjustment in the test mode.
- TEST mode setting.

1. Set the REV MODE to "⇄".
2. Short-circuit the JP901 and JP902 for a moment. (Set into TEST mode.)
3. The speed becomes normal when the PLAY key is pressed, and double when the FF key is pressed.
4. To cancel the TEST mode, press the DECK I COUNTER RESET key or turn off the power.

1. Tape Speed Adjustment and Check

No.	Deck	Mode	Test tape	Adjusting points	Specifications/Ratings (playback frequency)	Remarks
1	I	Double speed PLAY	STD-301 (3 kHz)	check	6000 Hz ± 600 Hz	
2	II			VR851	Within ± 10 Hz against the measurement value of the step 1 (deck I)	
3	I	NORMAL speed PLAY		VR802	3000 Hz ± 5 Hz	
4	II			VR852	Within ± 5 Hz against the measurement value of the step 3 (deck I)	

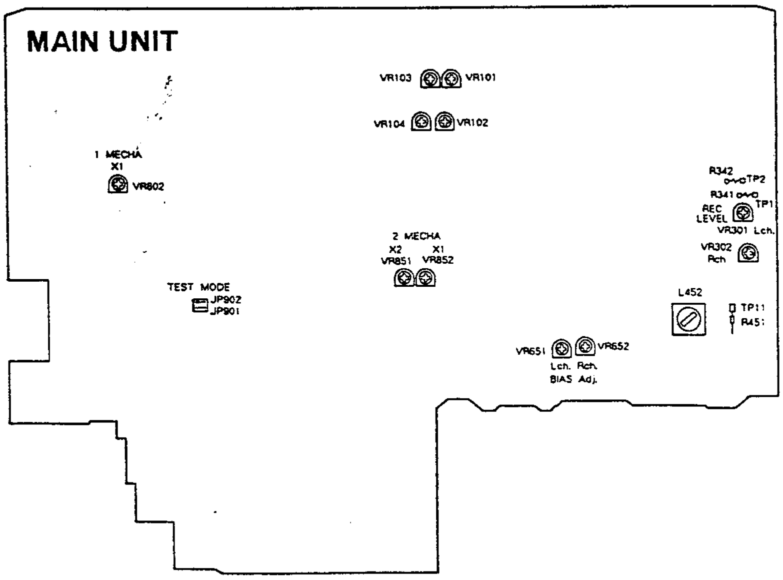

MAIN UNIT
VR103
VR101
VR104
VR102
1 MECHA
X1
VR802
R342
TP2
R341
TP1
REC LEVEL
VR301 Lch.
VR302 Rch
2 MECHA
X2 X1
VR851 VR852
TEST MODE
JP902
JP901
L452
TP11
R451
VR651 VR652
Lch. Rch.
BIAS Adj.

Fig. 7–2 Adjusting points

7.2 ELECTRICAL ADJUSTMENTS

Adjustment Conditions

1. The mechanical adjustments must be completed first.
2. The head must be cleaned and demagnetized.
3. Turn power on allow the deck to warm up for at least a few minutes before commencing any electrical adjustments.
4. The reference signal is 0 dBV=1 Vrms.
5. Connect a 50 kΩ (or between 47k to 52 kΩ) load resistance to the OUTPUT terminals.
6. Unless otherwise specified, the switches listed below are left in the positions indicated.
   DOLBY NR : OFF
   TAPE SELECTOR : NORM

Test Tapes

STD–331E	: Playback adjustments (See Fig. 7–3)
STD–631	: NORMAL blank tape
STD–621	: CrO2 blank tape
STD–610	: METAL blank tape

*As the reference recording level is 250 nwb/m for STD–331E, the recording level will be higher by 4 dB for STD–331B (160 nwb/m). When adjusting, pay carefull attention to the type of tape used.

List of Adjustments

Playback sections

1. Head azimuth adjustment.
2. Playback level adjustment.

Recording sections

1. Bias oscillator adjustment.
2. Recording bias adjustment.
3. Recording level adjustment.
4. Level meter check.

NOTE: This unit has an automatic tape selection feature.

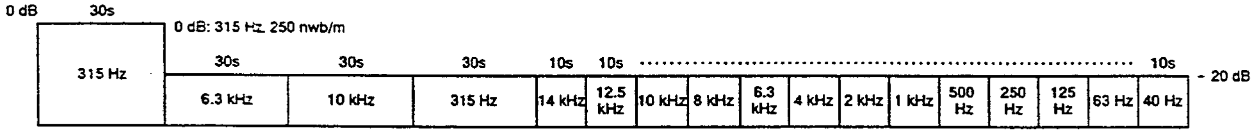

0 dB
30s
315 Hz
0 dB: 315 Hz 250 nwb/m
30s
30s
30s
10s
10s
10s
6.3 kHz
10 kHz
315 Hz
14 kHz
12.5 kHz
10 kHz
8 kHz
6.3 kHz
4 kHz
2 kHz
1 kHz
500 Hz
250 Hz
125 Hz
63 Hz
40 Hz
- 20 dB

Fig. 7–3 Constants of the test tape STD–331E

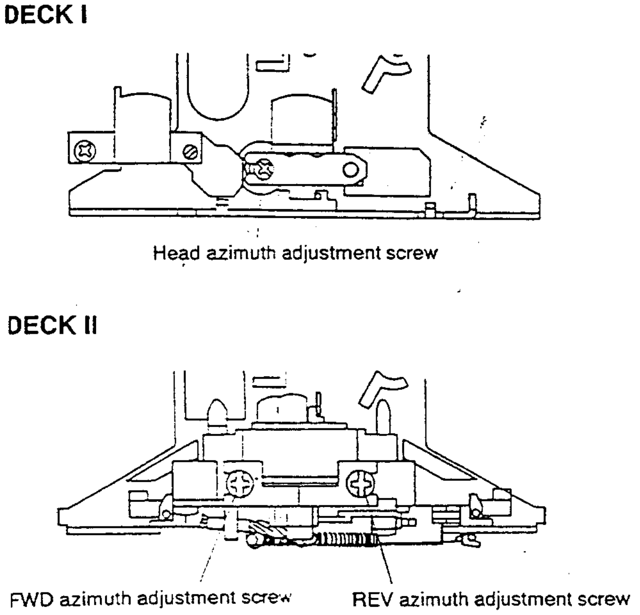

DECK I
Head azimuth adjustment screw
DECK II
FWD azimuth adjustment screw
REV azimuth adjustment screw

Fig. 7–4 Head azimuth adjustment

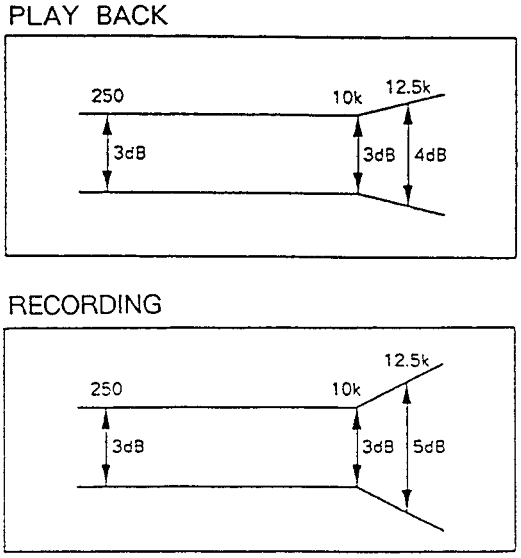


Fig. 7–5 Frequency response zone

PLAYBACK SECTION

1. Head Azimuth Adjustment

- Turn VR103, 104 (Deck I) or VR101, 102 (Deck II) to mechanical center positions.

No.	Mode	Input signal & test tape	Adjustment location	Measuring location	Adjustment value	Remarks
1.	PLAY	Play the 10 kHz/–20 dB section of STD–331E test tape.	Head azimuth adjustment screw. (See Fig. 7–4)	LINE OUT	Maximum playback signal level.	
2.	STOP	Lock the screw with screw lock after completing adjustment.				

2. Playback Level Adjustment

- This adjustment determines the DOLBY NR level, and must be performed with great care.

No.	Mode	Input signal & test tape	Adjustment location		Measuring location	Adjustment value	Remarks
1.	PLAY	Play the 315 Hz/0 dB section of the STD–331E test tape.	Deck I	VR 103 (Lch) VR 104 (Rch)	TP. 1 (Lch) TP. 2 (Rch)	–6.7 dBV	
			Deck II	VR 101 (Lch) VR 102 (Rch)			

RECORDING SECTION

1. Bias Oscillator Adjustment

No.	Mode	Input signal & test tape	Adjustment location		Measuring location	Adjustment value	Remarks
1.	REC	Load the STD–610 test tape with no input signal.	Deck II	L 452	TP. 11	105 kHz ± 0.3kHz	If the adjustment value on the left cannot be obtained values within 105kHz $\pm^{4}_{0.3}$ kHz are also satisfactory.

2. Recording Bias Adjustment

- After the adjustment, caution should be exercised so as not to become under bias by checking the distortion rate.

No.	Mode	Input signal & test tape	Adjustment location		Measuring location	Adjustment value	Remarks
1.	REC	Record the 315 Hz and 6.3 kHz signals at –20 dBV input level and playback. (STD-631)	Deck II	VR651(Lch) VR652(Rch)	LINE OUT	Repeatedly record, playback and adjust so that the playback level of 6.3 kHz signal becomes 0.5 dB ± 0.5 dB when compared with the 315 Hz signal.	

3. Recording Level Adjustment

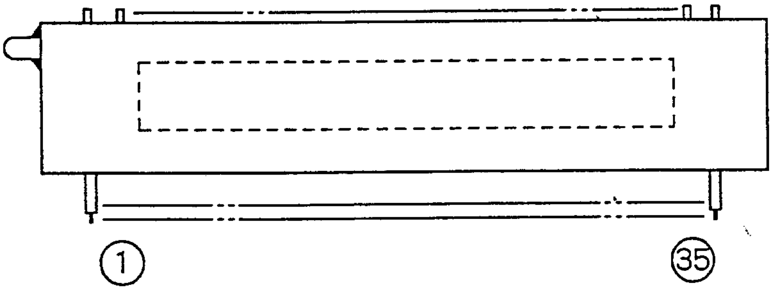
No.	Mode	Input signal & test tape	Adjustment location	Measuring location	Adjustment value	Remarks
1.	REC PAUSE	Apply a 315 Hz/0 dBV signal to the line input terminals, load the STD–631 test tape.	REC level control volume	TP. 1 (Lch) TP. 2 (Rch)	–11.2 dBV	
2.	STOP	Set the DOLBY NR switch to the ON position.				
3.	REC· PLAY	Record the above signal onto the STD–631 test tape, and playback.	Deck II VR301 (Lch) VR302 (Rch)	TP. 1 (Lch) TP. 2 (Rch)	Repeatedly record, playback and adjust so that the playback signal level becomes – 11.2 dBV.	
4.	REC· PLAY	Record the above signal onto the STD–621 test tape, and playback.	Check	TP. 1 (Lch) TP. 2 (Rch)	–11.2 dBV ± 1.5dB	
5.	REC· PLAY	Record the above signal onto the STD–610 test tape, and playback.	Check	TP. 1 (Lch) TP. 2 (Rch)	–11.2 dBV ± 1.5dB	

4. Level Meter Check

No.	Mode	Input signal & test tape	Adjustment location	Measuring location	Adjustment value	Remarks
1.	REC PAUSE	Apply a 315 Hz/–10 dBV (316 mV) signal to the Line Input terminals.	REC level control volume	TP. 1 (Lch) TP. 2 (Rch)	Check that the level meters "0 dB" light up within -7.2 dBV ± 2 dB of the signal output level.	

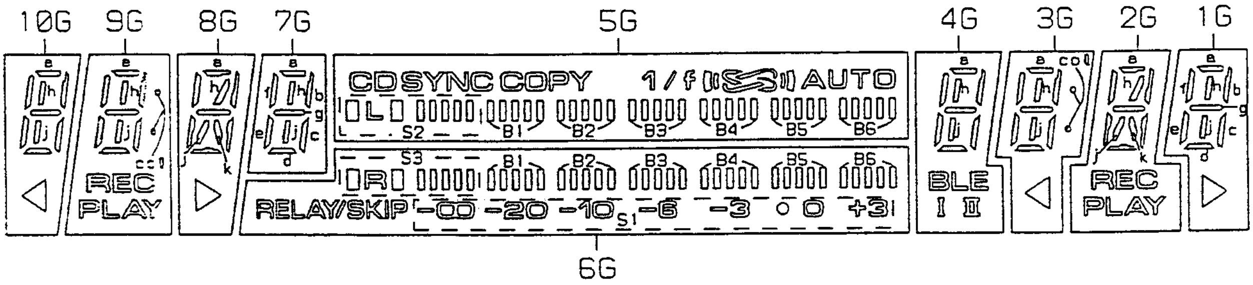
8. FL INFORMATION

- **RAW1123 (V1501)**



PIN NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
CONNECTION	F1	F1	NP	NC	10G	9G	8G	7G	NC	5G	6G	NC	4G	3G	2G	1G	NC	NC	P12	P11	P10	P9	P8	NC	P7	P6	P5	P4	P3	P2	P1	NC	NP	F2	F2

NOTE
1) F1, F2 --- Filament
2) NP ------ No pin
3) NC ------ No connection
4) 1G ~ × G --- Grid
5) DL ------- Datum Line
6) The view angle is 26° at the top and 33° at the bottom (minimum).


10G
9G
8G
7G
5G
4G
3G
2G
1G
6G
a
b
c
d
e
f
g
h
j
k
col
CD SYNC COPY
1/f
AUTO
OLD
S2
B1
B2
B3
B4
B5
B6
S3
ORD
RELAY/SKIP
-00
-20
-10
S1
-6
-3
0
+3
BLE
I II
REC
PLAY

ANODE CONNECTION

	10G	9G	8G	7G	6G	5G	4G	3G	2G	1G
P1	a	a	a	a	B1	B1	a	a	a	a
P2	b	b	b	b	B2	B2	b	b	b	b
P3	f	f	f	f	B3	B3	f	f	f	f
P4	g	g	g	g	B4	B4	g	g	g	g
P5	c	c	c	c	B5	B5	c	c	c	c
P6	e	e	e	e	B6	B6	e	e	e	e
P7	d	d	d	d	–	CDSYNC	d	d	d	d
P8	h, j	h, j	h, j	h, j	–	COPY	h, j	h, j	h, j	h, j
P9	–	col	k	–	–	AUTO	BLE	col	k	–
P10	◁	PLAY	▷	–	RELAY /SKIP	((≋))	I	◁	PLAY	▷
P11	–	REC	–	–	S1	1/f	II	–	REC	–
P12	–	–	–	–	S2	S3	–	–	–	–

9. FOR KU, KCXJ, SD AND SL TYPES

CONTRAST OF MISCELLANEOUS PARTS

NOTES:

- Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.
- The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- Parts marked by "⊙" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.

CT-W502R/KU, KCXJ, SD, SL and KUXJ have the same construction except for the following:

Mark	Symbol & Description	Part No.					Remarks
		KUXJ type	KU type	KCXJ type	SD type	SL type	
	Main unit	RWZ2823	RWZ2823	RWZ2823	RWZ2849	RWZ2849	
	Display unit	RWZ2825	RWZ2825	RWZ2825	RWZ2850	RWZ2850	
NSP	Transformer 1 unit	RWZ2941	RWZ2941	RWZ2941	RWZ2929	RWZ2929	
NSP	Transformer 2 unit	RWZ2827	RWZ2827	RWZ2827	RWZ2851	RWZ2851	
⚠	Power transformer (AC120V)	RTT1223	RTT1223	RTT1223	......	......	
⚠	Power transformer (AC110/120 – 127/220/240V)	......	......	......	RTT1225	RTT1225	
⚠	AC power cord	PDG1015	PDG1015	PDG1015	PDG1013	PDG1003	
⚠	FU1, FU2 Fuse (UL1.5A)	DEK1014	DEK1014	DEK1014	......	......	
⚠	FU1, FU2 Fuse (T1.6A)	......	......	......	REK1024	REK1024	
⚠	Strain relief	CM – 22C	CM – 22C	CM – 22C	CM – 22B	CM – 22B	
⚠	Line voltage selector (AC110/120 – 127/220/240V)	......	......	......	PSB1002	PSB1002	
NSP	Rear panel	RNA1702	RNA1701	RNA1670	RNA1664	RNA1663	
NSP	Main chassis	RNB1091	RNB1089	RNB1091	RNB1089	RNB1089	
	Packing case	RHG1480	RHG1479	RHG1441	RHG1433	RHG1433	
	Sheet	Z23 – 007	RHX – 034	Z23 – 007	RHX – 034	RHX – 034	
	Operating instructions (English)	RRB1127	RRB1130	......	RRB1129	RRB1129	
	Operating instructions (English/French)	......	......	RRE1071	......	......	
	Operating instructions (Spanish)	......	......	......	RRD1134	......	

MAIN UNIT

RWZ2849 and RWZ2823 have the same construction except for the following:

Mark	Symbol & Description	Part No.		Remarks
		RWZ2823	RWZ2849	
	Q1001	2SB1041	2SA1286	
	C1011	CEAS472M25	RCH1089 (4700 μ /35V)	
	R1002	RS2LMF471J	RS2LMF681J	
	R1020	RFA1/4L470J	RD1/2LF010J	
	R1021 (10 Ω, 1/6W)	......	DCN1002	

DISPLAY UNIT

Although RWZ2850 and RWZ2825 are different in part number, they consist of the same components.

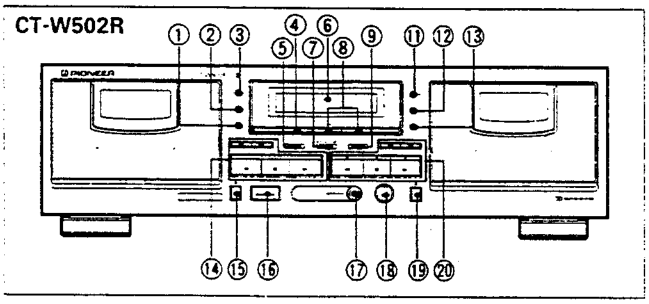
TRANSFORMER 1 UNIT

Although RWZ2929 and RWZ2941 are different in part number, they consist of the same components.

TRANSFORMER 2 UNIT

Although RWZ2851 and RWZ2827 are different in part number, they consist of the same components.

10. PANEL FACILITIES



① **RELAY/SKIP button**

② **DECK I counter reset button (RESET)**

③ **DECK I counter mode button (TIME/COUNT)**

④ **FLEX (1/f) button**

⑤ **Dolby* NR switch (B/OFF/C)**

*
- *Dolby noise reduction and HX Pro headroom extension manufactured under license from Dolby Laboratories Licensing Corporation. HX Pro originated by Bang & Olufsen.*
- *"DOLBY", the double-D symbol ＤＤ and "HX PRO" are trademarks of Dolby Laboratories Licensing Corporation.*

⑥ **Function display**

⑦ **Reverse mode switch (REV MODE)**

Both DECK I and II.

⑧ **Synchro copy buttons (SYNCHRO COPY I▶II)**

NORMAL : Normal speed copy
HIGH : Twice the normal speed copy

⑨ **TIMER mode switch (REC/OFF/PLAY)**

⑪ **DECK II counter mode button (TIME/COUNT)**

⑫ **DECK II counter reset button (RESET)**

⑬ **CD · DECK SYNCHRO recording button (CD SYNC)**

⑭ **Deck I operation buttons**

◀ : Reverse playback
▶ : Forward playback
◀◀/MS : Fast reverse/music search
■ : Stop
▶▶/MS : Fast forward/music search

⑮ **DECK I eject button (⏏)**

- If the tape is moving (recording, playback, tape winding, etc.), press the stop (■) button before pressing this button.

NOTE:
If the power is turned off while the tape is moving, the cassette door may remain locked. In this case, turn the power on before pressing the eject (⏏) button.

⑯ **POWER STANDBY/ON switch**

The POWER switch activates the secondary transformer only. Even when the switch is in the STANDBY position, there will be a power flow to the deck's circuits as long as the power cord is connected to a power outlet.

⑰ **Headphones jack (PHONES)**

⑱ **Recording level control (REC LEVEL)**

⑲ **DECK II eject button (⏏)**

- If the tape is moving (recording, playback, tape winding, etc.), press the stop (■) button before pressing this button.

NOTE:
If the power is turned off while the tape is moving, the cassette door may remain locked. In this case, turn the power on before pressing the eject (⏏) button.

⑳ **DECK II operation buttons**

◀ : Reverse playback
▶ : Forward playback
◀◀/MS : Fast reverse/music search
■ : Stop
▶▶/MS : Fast forward/music search
O : Recording mute
II : Pause
● : Recording

11. SPECIFICATIONS

System	4-track, 2-channel stereo
Heads	"Hard Permalloy" recording/playback head × 1 "Hard Permalloy" playback head × 1 "Ferrite" erasing head × 1
Motor	DC servo motor × 2
Wow and Flutter	No more than 0.1% (WRMS)
Fast Winding Time	Approximately 120 seconds (C-60 tape)
Frequency Response	
−20 dB recording:	
TYPE IV (Metal) tape	25 to 16,500 Hz
TYPE II (High/CrO_2) tape	25 to 16,000 Hz
TYPE I (Normal) tape	25 to 16,000 Hz
Signal-to-Noise Ratio	
Dolby NR OFF	More than 57 dB
Noise Reduction Effect	
Dolby B-type NR ON	More than 10 dB (at 5 kHz)
Dolby C-type NR ON	More than 19 dB (at 5 kHz)
Harmonic Distortion	No more than 0.8% (at −4 dB: 160 nwb/m)
Input (Sensitivity)	
LINE (INPUT)	100 mV (Input impedance 68 kΩ)
Output (Reference level)	
LINE (OUTPUT)	0.5 V (Output impedance 3.2 kΩ)
Headphones	0.63 mW (Load impedance 8 Ω)

Subfunctions

- Automatic reverse
- DOLBY HX PRO recording function
- DOLBY B/C type NR
- Music search over ±15 selections
- Synchronized copy start
- High-speed and normal-speed copy (Deck I → Deck II)
- Relay playback/blank skip
- CD · DECK SYNCHRO recording capability
- Peak level meter with peak-hold function
- Automatic space recording mute
- Automatic tape selector
- SR System remote control available
- TIMER Recording
- TIMER Playback (Automatic relay on)
- 2-mode electronic 4-digit twin tape counter
- Headphone jack
- FLEX system

Miscellaneous

Power Requirements	AC 110/120 – 127/220/240V (switchable), 50/60 Hz
Power Consumption	16 W
Dimensions	420(W) × 120(H) × 250(D) mm
Weight (without package)	4.2 kg

Accessories

Operating instructions	1
Connection cord with pin plugs	2
SR Remote control cord	1
CD · DECK SYNCHRO control cord	1

NOTE:
Specifications and design subject to possible modifications without notice, due to improvements.